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# Pediatric Physical Therapy Assessment Tool Utilization by Therapists in Minnesota and North Dakota

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*University of North Dakota*

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PEDIATRIC PHYSICAL THERAPY ASSESSMENT  
TOOL UTILIZATION BY THERAPISTS IN  
MINNESOTA AND NORTH DAKOTA

by

Laura Torkildson  
Bachelor of Science in Physical Therapy  
University of North Dakota, 2000

An Independent Study

Submitted to the Graduate Faculty of the

Department of Physical Therapy

School of Medicine

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Physical Therapy

Grand Forks, North Dakota

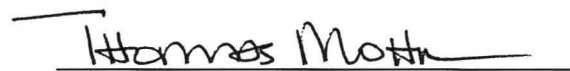
May  
2001



This Independent Study, submitted by Laura Torkildson in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Faculty Preceptor, Advisor, and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

  
(Faculty Preceptor)

  
(Graduate School Advisor)

  
(Chairperson, Physical Therapy)

## PERMISSION

Title            Pediatric Physical Therapy Assessment Tool Utilization by  
Therapists in Minnesota and North Dakota

Department    Physical Therapy

Degree        Master of Physical Therapy

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Date 12-20-00



## TABLE OF CONTENTS

LIST OF FIGURES .....	vi
LIST OF TABLES .....	vii
ACKNOWLEDGMENTS .....	viii
ABSTRACT .....	x
CHAPTER	
I      INTRODUCTION .....	1
Definition of Assessment .....	1
The Assessment Process .....	1
Selection of Assessment Instruments .....	4
Problem Statement .....	5
Purpose of Study .....	6
Significance of Study .....	6
Research Questions .....	6
II     LITERATURE REVIEW .....	8
Screening Tests .....	9
Tests of Motor Function .....	12
Comprehensive Developmental Tests .....	25
Functional Assessment Tests .....	28
III    METHODOLOGY .....	36

	Objectives .....	36
	Subjects .....	36
	Instrumentation .....	37
	Procedure .....	37
	Data Analysis .....	38
IV	RESULTS .....	39
	Survey Questions and Responses .....	40
V	DISCUSSION .....	59
	Research Questions Answered .....	59
	Limitations of the Study .....	62
	Further Research Recommendations .....	63
	Conclusions and Clinical Implications .....	63
	APPENDIX A .....	65
	APPENDIX B .....	74
	REFERENCES .....	77

## LIST OF FIGURES

Figure		Page
1	Question #1 - Reported percentages of pediatric practice by practitioners .....	40
2	Question #2 - Reported pediatric practice settings .....	42
3	Question #3 - Reported population distributions of respondent's pediatric practice settings .....	43
4	Question #4 - Reported lengths of professional experience in pediatrics .....	44
5	Question #4 continued - Reported full-time or part-time professional pediatric experience .....	45
6	Question #5 - Reported professional training .....	46
7	Question #7 - Reported assessment instruments utilized in practice .....	48
8	Question #9 - Purposes for seeking assessment scores .....	51
9	Question #12 - Instruments required for entry-level PT competencies .....	57
10	Question #13 - Reported areas of need in assessment instrumentation .....	58

## LIST OF TABLES

Table		Page
1	Question #1 - Survey Response Frequencies and Mode . . . . .	40
2	Question #2 - Survey Response Frequencies and Mode . . . . .	41
3	Question #3 - Survey Response Frequencies and Mode . . . . .	42
4	Question #4 - Survey Response Frequencies and Mode . . . . .	44
5	Question #4 continued - Survey Response Frequencies and Mode . . . . .	44
6	Question #5 - Survey Response Frequencies and Mode . . . . .	45
7	Question #6 - Survey Response Frequencies and Mode . . . . .	46
8	Question #7 - Survey Response Frequencies and Mode . . . . .	48
9	Question #8 - Survey Response Frequencies . . . . .	50
10	Question #9 - Survey Response Frequencies . . . . .	51
11	Question #10 - Survey Response Frequencies . . . . .	53
12	Question #11 - Survey Response Frequencies . . . . .	55
13	Question #12 - Survey Response Frequencies and Mode . . . . .	56
14	Question #13 - Survey Response Frequencies and Mode . . . . .	58

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## ABSTRACT

Physical therapists are important members of multifaceted teams of professionals who work with children with disabilities. Much of the physical therapist's role involves assessment of a child's development. Assessment is an ongoing process of gathering and evaluating information about the child so that effective treatment can be implemented and eligibility for appropriate services determined. Therefore, it is imperative that physical therapists have current knowledge about various assessment instruments and the appropriate usage of each.

The intention of this study was to identify and describe the pediatric assessment instruments utilized by physical therapists in Minnesota and North Dakota. The results of this study provide information regarding trends in assessment instrumentation, advantages and/or disadvantages of specific tests, possible future pediatric physical therapy curriculum design and areas of need in assessment instrumentation. In order to obtain this information, it was necessary to ask individuals for their input via questionnaire survey.

Subjects included physical therapists practicing in Minnesota and North Dakota as identified by the Minnesota and North Dakota representatives of the APTA pediatrics section. Participation in this research was optional. The individual's decision whether or not to participate in no way affected their future

relationships with the Physical Therapy Department at the University of North Dakota. Completion and return of the survey indicated consent by the individual to participate in this study. Subjects did not receive monetary compensation for participating in this research.

The initial mailing of the survey was followed by a reminder notice approximately two weeks later. A second mailing of the same survey was sent to non-respondents at approximately week four.

The survey process resulted in data that was coded and analyzed to identify: 1) trends in assessment instrument usage, methods of instrument application and purpose, 2) advantages and/or disadvantages of specific instruments, 3) information regarding subject's opinion of necessary entry-level physical therapist competencies in assessment instrumentation, and 4) areas of need in assessment instrumentation.



## CHAPTER I

### INTRODUCTION

Physical therapists are important members of multifaceted teams of professionals who work with children who have disabilities.<sup>1-3</sup> They can be found in a variety of environments that serve children including medical facilities and public schools. In fact, according to author Karen Lunnen,<sup>1</sup> schools are where most pediatric physical therapists are practicing. Whether a pediatric physical therapist is practicing in a medical facility or in a school system, much of the physical therapist's role involves the important assessment process of a child's development.<sup>1,2</sup>

#### Definition of Assessment

*Assessment*<sup>1,2</sup> is an ongoing process of gathering and evaluating information about the child so that effective treatment can be implemented and/or appropriate services determined. Fundamentally, it is the acquisition of an extensive, thorough understanding about a child's difficulties and the implications to function.

#### The Assessment Process

The assessment and reassessment process often involves medical and/or educational professionals in addition to the physical therapist who are also working closely with a child.<sup>1,2</sup> Two such professionals often are the

occupational therapist<sup>3</sup> and the speech/language pathologist who assess fine motor development and language development, respectively. The majority of physical therapists, however, primarily assess gross motor development in children.<sup>2</sup> It is important to realize, however, that such a division in assessment of these developmental areas according to discipline does not always hold true.<sup>3</sup> Physical therapists often assess other areas of development, such as fine motor skill, in addition to the assessment of gross motor function.<sup>2</sup>

Physical therapists follow basic processes of information gathering when assessing a child's development.<sup>2,3</sup> Interviews are conducted with the child and the parents. If age allows, the child's medical records are thoroughly reviewed. Additional information is obtained by simple, ongoing observation of the child. Physical therapists may then, if they believe necessary, utilize a pediatric assessment instrument(s) to further collect information and understand better the child's functional level.<sup>1-3</sup>

Circumstances that would necessitate the use of an assessment instrument(s) and the specific kinds of instruments that meet those needs are described next. A *predictive* assessment instrument is utilized when the therapist is seeking an approximation of what a child's future level of function or skill will be.<sup>3-5</sup> An *evaluative* assessment measure is used when the therapist needs to determine whether or not and to what degree a child has demonstrated a change in function or in skill over time and/or after intervention. A *discriminative* assessment tool is utilized when a therapist must differentiate between a child with and a child without a specific function or skill via the use of

standard scores and/or percentile ranks. Caution must be exercised, though, when a therapist is choosing which instrument(s) to utilize.<sup>3,4,6</sup> An assessment instrument should not be used for any purpose other than for which it was created (i.e., to predict, to evaluate, or to discriminate) nor should it be used with children unlike the child population with whom the instrument was validated.<sup>4</sup>

As the previous assessment needs suggest, pediatric physical therapy assessment instruments are an integral component in better understanding a child's level of developmental function and/or skill.<sup>1-3,7</sup> It is imperative then that physical therapists understand the particular assessment needs and understand which instruments they may use to accommodate those needs. It is important to point out, however, that assessment instruments are not only needed and utilized solely to determine functional levels in children. Often, assessment instrument scores are a requirement for a child to be eligible for certain medical and/or educational programs or services.<sup>3,7</sup> Third party payers, such as insurance companies, may also require assessment instrument scores in order to allow funding of services for a child.<sup>3,8</sup> In turn, physical therapists too may want to obtain assessment instrument results for proof of intervention efficacy as a means of monitoring outcomes or for purposes of research.<sup>3,7</sup> When physical therapists seek pediatric evaluation data, physical therapists need to have knowledge of current, evidence-based information regarding assessment instruments and understand the appropriate usage of each.

### Selection of Assessment Instruments

In addition to understanding the specific needs for which certain assessment instruments are utilized, physical therapists must consider other factors when selecting an appropriate assessment instrument to use. Because there are so many assessment instruments available, Stangler and associates<sup>2,3,7</sup> recommend that therapists consider the following six factors when making a selection: 1) acceptability, 2) simplicity, 3) cost, 4) appropriateness, 5) reliability, and 6) validity. *Acceptability* refers to the acceptance of the test by all who may be affected by it: children and families, involved professionals, and the community.<sup>2</sup> *Simplicity* is how easily an assessment instrument can be taught, learned, and administered.<sup>2</sup> *Appropriateness* of an evaluation tool implies that the instrument meets a need to assess a specific problem and that the tool is applicable to the population tested.<sup>2</sup> *Costs* to consider include equipment, personnel, loss due to inaccurate results, personal cost to whomever is undergoing testing, and benefits of early detection.<sup>2</sup> *Criterion-referenced tests* are those tests in which scores are based on absolute criteria rather than relative criteria, like the number of questions answered correctly on a test instead of one score in comparison to those scores in a normal group.<sup>2,3,8</sup> *Norm-referenced or standardized tests* interpret an individual's score by comparison to a normative value (norm) or standard. These norms consist of a large, pre-collected sample of scores that define a population.<sup>2,3,8</sup> *Reliability* is how consistent a test is; consistency between separate measurements of the same test (*test-retest*

*reliability*) and consistency between separate testers administering the same test (*inter-observer reliability*).<sup>2</sup> *Validity* is the accuracy in which a test measures what it is supposed to measure.<sup>2</sup> *Sensitivity* is the accuracy in which a test can correctly identify individuals who have a particular disorder.<sup>2</sup> *Specificity* is the accuracy in which a test can correctly identify individuals who do not have a particular disorder.<sup>2</sup>

Several reasons why physical therapists need pediatric assessment instruments have been pointed out, as well as many factors that must be taken into account when making instrument selection. In consideration of those issues and the fact that there are many instruments from which to choose, evidence-based information regarding assessment instruments can be useful to pediatric therapists in the evaluation process.<sup>3</sup> Therefore, this study has been conducted to investigate which tools are being used, format and frequency of administration, advantages and/or disadvantages of tests, competency criteria for entry-level therapists, and future evaluation needs. This information will facilitate the instrument selection process for physical therapists.

### Problem Statement

Little information is available regarding current pediatric physical therapy assessment instrument usage. It is unclear for which purposes tests are being utilized, which formats are used for test administration, with which instruments entry-level therapists must have competencies, advantages and/or disadvantages of various tests, and whether or not there is perceived need in pediatric assessment instrumentation.

### Purpose of Study

Much of the physical therapist's role in working with children with disabilities involves assessment of a child's development through the use of specific assessment instruments. Therefore, it is imperative that therapists have current, evidence-based knowledge about various assessment instruments so that appropriate assessment determinations are made. The purpose of this study is to identify and describe pediatric assessment instruments currently utilized by a selected number of practicing physical therapists.

### Significance of Study

Information obtained by this study will reveal trends in selection of pediatric physical therapy assessment instruments. Explanation for the usage of specific instruments will be provided. Perceived advantages and/or disadvantages of various tests will be reported. Data obtained may serve as a guide for the design of pediatric physical therapy curricula. Potential areas of need in pediatric physical therapy assessment instrumentation will be identified.

### Research Questions

1. What pediatric assessment instruments are being utilized?
2. How often are those instruments utilized?
3. For what purpose(s) are certain instruments implemented?
4. In what format(s) are instruments administered?
5. What are the perceived advantages and/or disadvantages of various assessment instruments?

6. What should be considered entry-level knowledge for PT graduates regarding assessment instruments?
7. Are there areas of need in assessment instrumentation?

## CHAPTER II

### LITERATURE REVIEW

As described in the first chapter, much of the pediatric physical therapist's role involves ongoing child assessment. Assessment instruments are a significant component of this evaluation process. This process enables therapists to gain a better understanding of a child's functional level. In addition, the process provides a means to gather treatment efficacy data, verification of outcomes, and facilitation of research. In addition, evaluation data are often required to determine service eligibility and to obtain funding for services.<sup>1-3,7,8</sup>

Because only a limited amount of current, evidence-based information exists regarding the selection and usage trends for these assessment instruments, this research study was designed to obtain that information. In support of this study, a thorough review of the kinds of assessment instruments commonly available to therapists and a specific description of each is warranted. A number of pediatric physical therapy assessment instruments are described in this chapter and organized according to four distinct domains: screening tests, tests of motor function, comprehensive developmental tests, and functional assessment tests. When considering these domains, remember the purpose classifications of assessment measures described in the previous chapter (predictive, evaluative, or discriminative).<sup>3-5</sup> These classifications provide



additional rationale for the selection of assessment instruments. These classifications will also be stated for each instrument as the information was available.

### Screening Tests

When there is suspicion that a child is experiencing difficulties with normal developmental activities, a screening test can be used to confirm or rule out such a suspicion. Screening tests are designed specifically to identify children who may not be developing or functioning at a normal, appropriate age level. Determinations for referral for further evaluation and/or intervention services may be made based on screening test results.<sup>2,3</sup> These instruments may be designed for over-referral of children so therapists will need to verify instrument designs to accurately interpret tests results. The Denver II and the Hawaii Early Learning Profile (HELP) are examples of screening tests.

The **Denver II**<sup>2,3,9</sup> is the revised version of The Denver Developmental Screening Test (DDST) that was created by Frankenburg and Dodds in 1967. It is a standardized, norm-referenced instrument used to detect developmental delays in children age birth to six years and is useful in identifying developmental change over time. Among several of the reasons for revision of the DDST was the need for more language items and current norms. With these revisions and test standardization, the Denver II is considered to be a valid screening instrument. Examiner-observer reliability is reported on average at 0.99 and test-retest reliability at 0.90.<sup>2,9</sup>

Administration of this instrument involves direct observation of a child and verbal report from the child's caregiver. Administration time is approximately 10 to 20 minutes. Four areas of development are assessed and scored utilizing 125 test activities: Gross and Fine Motor, Language, and Personal-Social. Each is addressed in a specific manner as indicated in the test manual. A child also receives a "Test Behavior" score upon completion of the screening. This score provides an indication if the child's behavior during the screening is representative of the child's routine behavior. Accuracy of screening relies heavily on the correct determination of a child's age. The number of test items examined during the child's screening depends on that age calculation. The Denver II contains all necessary forms for scoring and a test manual with detailed instructions. A kit containing the materials used in administering the Denver II is available for purchase as well.

Final scores for the Denver II are "normal," "suspect," or "untestable." With a score of "suspect" or "untestable," a repeat screening is recommended before referral or further evaluation is made. A "caution" must be taken when using these scores so as not to label a child unnecessarily.

The **Hawaii Early Learning Profile (HELP)**<sup>3,10</sup> is a family and curriculum based assessment instrument that assesses comprehensive development in children. HELP is not standardized although its development was based on numerous developmental scales and standardized tests. HELP may be used by many different professionals including physical therapists, early childhood educators, and psychologists. This test evaluates the child as a whole and may

be used with infants, toddlers, and young children. The instrument was designed to identify a child's developmental needs and development level, track growth and development change over time, and target treatment objectives. Six developmentally sequenced domains are assessed using 685 skill items. The six domains and examples of items included in each domain are as follows:

- 1) cognitive domain, including sound awareness and problem solving skills;
- 2) language domain, including verbal and gesture communication skills;
- 3) gross motor domain, including skills in the prone position, motor planning, and reflexes;
- 4) fine motor domain, including grasping and bilateral skill;
- 5) social domain, including attachment and separation level and ability to learn rules; and
- 6) self-help domain, including independent feeding and toileting.

The HELP manual provides play-based activities and intervention strategies to address each skill. Each domain skill has a unique identification number for easy cross-referencing of the skill across all HELP products (which will be described later).

Proper use of HELP requires the use of the "Inside HELP Administration Manual (0-3)." This manual provides a thorough review of instructions, developmental assessment procedures, definitions for each skill, and criteria for scoring. Administration of HELP allows a child's parent to be present to assist in presenting a skill item to the child so that the administrator can observe. The administrator may also interview parents for additional information. The HELP manual provides culturally sensitive family interview questions that are related to the child's development. These questions address family concerns and needs as well.

The following are a few of the products available to supplement HELP. “Using HELP Effectively” is a 20-minute training video. “HELP Strands (0-3)” is an organizational assessment record booklet that implements a framework of interrelated, sequential developmental concepts. “HELP at Home” is comprised of reproducible, activity hand-outs that are easily individualized to any child and promote parent involvement in treatment. “HELP Charts” provide visual tracking of a child’s progress and the “HELP Checklist” can be used as the initial or ongoing assessment.

### Tests of Motor Function

These motor tests examine gross and fine motor functional development in children. These areas, especially gross motor function, are often a primary concern to physical therapists.<sup>2</sup> Examples of available motor function tests are the Gross Motor Function Measure and the Peabody Developmental Motor Scales.

The **Peabody Developmental Motor Scales (PDMS)**<sup>2,3,11</sup> is a standardized norm-referenced and criterion-referenced test of motor function. The PDMS is a discriminative test that distinguishes between children with or without a particular level of skill or function. This test was constructed between the years 1969 and 1982 by Folio and Fewell.<sup>2,3,11</sup> The second revised edition of the Peabody, the PDMS-2<sup>13</sup> (2000) is also now available. The PDMS involves individual or group administered tests of sequential, developmental gross and fine motor skills for children age birth to 83 months. Utilization of the PDMS is suitable for both children without disabilities and children with disabilities. The

PDMS includes normative data for children without disabilities but not for children with disabilities. According to the authors,<sup>11</sup> reliable and valid information about a child with disabilities may still be obtained despite this lack of normative data.<sup>2</sup> The PDMS-2 includes new normative data stratified by age that is representative of the current U.S. population.<sup>13</sup>

Research data<sup>2,11,14</sup> support the PDMS as a highly reliable and valid assessment instrument. Test-retest reliability and inter-observer reliability of the PDMS scored a coefficient of 0.99; whereas, the PDMS-2 coefficients ranged from .73 to .96 for test-retest reliability.<sup>2,11,13</sup> Content and construct validity have been established for both the PDMS and the PDMS-2.<sup>2,3,11,13,14</sup>

The gross motor portion of the PDMS is divided into 17 age categories containing 170 test items.<sup>2,3,11</sup> These 170 test items are divided across five skill areas including balance, reflexes, locomotive and non-locomotive skills, and ability to receive and propel objects. The fine motor portion of the PDMS is divided into 16 age categories containing 112 test items. These 112 test items are divided across five skill areas including grasping, hand usage, eye-hand coordination, and dexterity. The gross motor portion of the PDMS-2 consists of four subtests: reflexes (up to 11 months), stationary and locomotor (all ages), and object manipulation (12 months or older). Fine motor subtests of the PDMS-2 include grasping and visual-motor integration (all ages).<sup>13</sup>

Both the PDMS and the PDMS-2 take approximately 45 to 60 minutes to administer when utilizing the appropriate basal and ceiling rules as indicated by

the test manual.<sup>11,13</sup> No special training is required to administer the PDMS, although familiarity with the instruments is important.<sup>2,11</sup>

A three-point system<sup>2,3,11</sup> is used when scoring the PDMS: "0," "1," or "2." A score of "0" indicates the child can't or won't attempt the test activity. A score of "1" means that the child clearly attempted to perform the test activity, but does not meet all of the criteria required for a perfect score pertaining to the test activity. A score of "2" indicates that a child performs the test activity fully according to the test activity criteria. Specific test criteria and score values are provided with each test activity in the manual.

To interpret the results of the PDMS, raw scores obtained during administration are converted to normative, standardized scores based on norm tables provided in the test manual.<sup>11</sup> Age equivalent scores, percentiles, and Z scores may also be obtained as well as composite quotients<sup>13</sup> if utilizing the PDMS-2. Standardized scores are then plotted for both gross and fine motor portions of the test to generate a Motor Development Profile. This profile is used for comparison between the two motor areas.

Advantages of the PDMS and the PDMS-2 include standardizations, validity and reliability, and norm- and criterion-references.<sup>2,11,14</sup> The specific scoring system allows for identification of developing skills and for measurement of progress. The PDMS-2 provides ways to express a child's performance in a variety of score forms. Test items may also be utilized as specific treatment interventions. Activity cards for programming are also included in the PDMS-2.<sup>13</sup>

A disadvantage of the PDMS and the PDMS-2 is the subjectivity of scoring and the unclear explanation of the "1" score in the three-point scoring system.<sup>2,3</sup> It is difficult to determine basal levels for children with cerebral palsy using either instrument. The PDMS test kit does not include all items needed for administration.<sup>2</sup>

The **Bruininks-Oseretsky Test of Motor Proficiency (BOT)**<sup>2,3,15</sup> is a norm-referenced, standardized test of motor function that is administered individually. The BOT is a discriminative test that distinguishes between children who do or do not possess a certain motor skill or function. The instrument was created by Dr. Robert H. Bruininks<sup>15</sup> and was modeled after Oseretsky Tests of Motor Proficiency.<sup>2</sup> It is designed for use in children with or without developmental disabilities who are 4.5 to 14.5 years of age. The BOT is useful in determining appropriate therapeutic interventions in the educational setting. According to Bruininks,<sup>2,15</sup> the BOT is a valid test of motor proficiency. Test-retest reliability is recorded on average at 0.87, while inter-observer reliability results range from 0.90 to 0.98.<sup>2</sup>

The BOT requires direct observation of a child performing tasks in the areas of gross and fine motor function. A complete assessment involves 46 separate activities divided amongst eight subtests.<sup>2,3,15</sup> Gross motor activities assess balance, coordination, strength, speed, and agility and fine motor activities examine upper limb control, coordination, dexterity, and speed of skill activities. A short form assessment involves only 14 items.

Administration of the BOT requires a large, structured environment and requires approximately 45 to 60 minutes.<sup>2,3,15</sup> When working with young children, this time may be divided into two shorter administration sessions. No special training is required to administer the BOT, although familiarity with the instrument is important. All standardized materials needed for administration are included in the test kit which includes the test manual.

The BOT provides three estimates of motor proficiency: a gross motor composite, a fine motor composite, and a battery composite which is a combination of all the subtests.<sup>2,15</sup> Scoring of the BOT involves first transforming raw scores into point scores and then into standardized scores with an equivalent age. A comparison of an individual child's scores with those of the norm reference population provides a t or Z score.<sup>15</sup>

Advantages of using the BOT include the wide age range the test covers, the inclusion of test materials in the BOT kit, and the norm-references provided for scoring. Weaknesses of the BOT include the difficulties experienced when using the instrument with children who have disabilities<sup>2,16</sup> and the large area of space that is required for administration of the test.

The **Gross Motor Function Measure (GMFM)**<sup>2,3,4</sup> is a criterion-referenced test designed by the Gross Motor Measures Group<sup>4</sup> for pediatric physical therapists to assess *how much* a child with cerebral palsy (CP) or a head injury can do over time, within the realm of gross motor function. In other words, it tests how much of a motor activity a child can accomplish rather than how well the activity is performed. The GMFM can measure the amount of change a child



displays over time or after intervention.<sup>2,4,17</sup> The instrument's intended use is in association with the Gross Motor Performance Measure<sup>2,18</sup> which will be described later in this chapter. The GMFM contains items that can be accomplished by a five-year-old child with normal motor abilities. The five areas of gross motor function the GMFM assesses using an available 88 test items are:<sup>2,3,4</sup> (a) lying and rolling, (b) crawling and kneeling, (c) standing, (d) sitting, and (e) walking, running, and jumping. Consideration is given to the level of independence a child demonstrates in these areas, whether they require assistance or assistive devices.

The GMFM is a valid measure of motor function change in children with CP with content, criterion, and construct validity research described in the test manual.<sup>4</sup> The GMFM reports an intra-observer reliability range of 0.92 to 0.99 and an inter-observer reliability range of 0.87 to 0.99.<sup>2,4</sup> Judgments made by the physical therapist and the parents during administration of the GMFM affect the individual reliability and validity of the test. It should be noted that for clinicians who attended a GMFM workshop, reliability rates for scoring have been shown to increase substantially.<sup>4,2</sup> A training videodisc and accompanying written literature is also available to therapists to increase administration and scoring reliability.<sup>2,4</sup>

Administration of the GMFM is done using a specific testing sequence as indicated in the provided rating form. The time required to administer the GMFM is 45 to 60 minutes. The GMFM manual provides instructions on the number of trials in which a child may attempt a test item, specifics on verbal instructions

that can be used, and explanations of how demonstration of test items may be performed. Items are scored on a score sheet according to a four-point Likert scale: "0," "1," "2," and "3."<sup>2,4</sup> A score of "0" represents the child cannot do the task, "1" refers to initiation of the task by the child, "2" indicates the child partially completed the task, and "3" marks total completion of the task. Test items must be observed during the testing session in order for the item to be scored. The GMFM contains refined scoring criteria that makes the test sensitive to small changes in motor function. Scores are totaled for each test area. Each test area contributes equally for a percent score to be calculated. A goal score is determined for goal areas that the therapist selects. A goal area is one where change is expected to occur. Specific details for scoring and interpretation are provided in the GMFM manual<sup>2,4</sup> and presented in the training videotapes and workshops.

Advantages of the GMFM include the standardization on children who have motor disabilities and the application of the test to children of a wide age range.<sup>2,4,17</sup> Administration of the GMFM requires toys and equipment that are already normally found in any therapy setting. Disadvantages of the GMFM are that it is not norm-referenced and only observed performances during the testing session may be included in scoring.

The **Gross Motor Performance Measure (GMPM)**<sup>2,18</sup> is a criterion-referenced, observational test used by pediatric physical therapists. It should be used in association with the GMFM to assess the *quality* of gross motor movement.<sup>2,4,18</sup> The GMPM may be used with children age 5 months to 12

years. The GMPM is designed to track change in a child's quality of movement. Using 20 test items, different characteristics of movement quality may be examined including: (a) stability, (b) coordination, (c) alignment, (d) dissociation, and (e) weight shift skills. These areas are explained in the GMPM manual.<sup>2,18</sup> Reliability of the GMPM is scored at a range of 0.92 to 0.96 for test-retest, interrater and intrarater reliability.<sup>2</sup> However, the authors<sup>18</sup> indicate that further research is required to determine accurate ratings of validity and reliability for the test.<sup>2,18</sup> Therefore, at this time, the GMPM used alone is only appropriate for purposes of research.<sup>2</sup>

Administration of the GMPM requires little equipment and takes up to one hour of time. Test administrators must be trained and practiced in utilizing the GMPM. For use with children who have CP, test administrators must be familiar and competent in applying the instrument to the complex patterns of motor behavior that are characteristic of this disorder.

Items assessed using the GMPM are those which a child was able to at least partially complete on the GMFM. A scale of five different values is used in scoring "1" through "5."<sup>2,18</sup> Scores represent the following skill levels: "1" = severely abnormal quality, "2" = moderately abnormal, "3" = mildly abnormal, "4" = inconsistently abnormal, and "5" = normal. A mean score is determined and transformed into a percentage for each characteristic of movement quality. These mean scores are averaged for a total percent score.

Strengths of the GMPM include its ability to measure the child's quality of movement reliably and its usefulness over a broad age range. Limitations of the

GMPM include the lack of a normative standardized sample, the training and practice that is required of the therapist to administer the test, and the fact that research-based evidence does not yet support the use of the tool for general purposes.<sup>2,18</sup>

The **Top-Down Motor Milestone Test**<sup>19</sup> is an assessment instrument that is a component of the **MOVE (Mobility Opportunities Via Education) Assessment Profile**.<sup>19</sup> The MOVE Assessment Profile is used in conjunction with the **MOVE Curriculum**.<sup>19</sup> The MOVE Curriculum, created by Linda Bidabe,<sup>19</sup> is an educational program aimed at teaching children functional motor skills that are needed at home and in the community. This is done by providing an environment where children naturally practice their motor skills while participating in educational or recreational activities. MOVE is designed to increase the amount of motor independence children have so that they may sit, stand, and walk. Parents are involved in the selection of the activities in which children participate to acquire those motor qualities. The format of MOVE allows cooperation between therapists, educators, and non-professionals in assisting the child with those activities. This collaboration between therapists and educators under the MOVE Curriculum has facilitated the development of specific equipment that is used in the program. The equipment is designed to meet functional needs of children, including mobility, feeding themselves, self-controlled toileting, and leisure activities. Specific equipment has allowed professionals the ability to physically manage the child while teaching correct

movement patterns. The equipment also allows children to independently practice their motor skills. This equipment is designed to promote bone and joint integrity and improve extensor muscle strength of the child.

The MOVE program was originally created for children who had not developed skills necessary to independently sit, weight bear on their feet, and step reciprocally.<sup>19</sup> The program has since been expanded to the adult orthopedic population. MOVE is contraindicated, however, for those who are not able to sit, stand, and walk.

The MOVE Assessment Profile<sup>19</sup> is a planning workbook that helps a child with motor disabilities become more independent in areas such as sitting, standing, and walking. Each step of the MOVE curriculum is recorded in the MOVE Assessment Profile, providing a means of record keeping. The MOVE Assessment Profile also includes critical skill activity sheets for the child. The Top-Down Motor Milestone Test<sup>19</sup> is the first and only step of the MOVE Assessment Profile that will be discussed for purposes of this study. Other steps of the MOVE Assessment Profile involve setting goals and task analysis, for example, and are beyond the scope of this study and, therefore, will not be discussed.

Sixteen areas are covered in the Top-Down Milestone Test including "Maintaining a Sitting Position," "Standing," and "Walking Forward."<sup>19</sup> Each area contains specific skills with varying levels of difficulty and complexity. The Top-Down Motor Milestone Test is in interview format. The child, the primary caregivers, and the primary professionals working with the child should be

present when conducting the interview. Test items should be read by one of the professionals, facilitating discussion. Test items need to be performed by the child only if the child's ability to perform the skill is unknown. Otherwise, the child and the caregivers provide the primary information for purposes of the test. Testing begins at the most difficult level. If the child is unable to perform the most difficult skill, testing is moved to the next level of skill difficulty. The professional(s) may add additional information to the test after the primary information from the child or caregivers have been obtained. Scoring forms are provided with the test as well as a "Summary of Test Results" page.<sup>19</sup> Results from the Top-Down Motor Milestone Test are factored into the other five steps of the MOVE Curriculum and recorded in the MOVE Assessment Profile creating the workbook described earlier for acquiring critical skills.

Various types of MOVE training are available ranging from one- or two-day training programs, problem-solving clinics, and videos. Current information regarding MOVE training can be found at the MOVE International website.<sup>19</sup>

The **Alberta Infant Motor Scale (AIMS)**<sup>2,20</sup> is a criterion-referenced, observational test of gross motor function developed by Piper and associates<sup>20</sup> that has provided the ability to detect early dysfunction. This instrument examines 58 activities that address sequential positional development of a child in prone, supine, sitting, and standing.<sup>2,20</sup> Weight bearing, anti-gravity movements, and posture are considered. The AIMS assessment is standardized with accompanying normed percentile ranks. The content of the tool is considered valid and is documented in the test manual. Interrater reliability and

test-retest reliability of the AIMS are 0.99.<sup>2,20</sup> Children from age birth (40 weeks after conception) to children of independent walking age (up to 18 months) may be evaluated using this instrument. The primary purposes of the AIMS are as follows: (a) recognize a child who may be exhibiting gross motor delays; (b) detect any changes that occur in a child's gross motor function; (c) offer information to the health care provider and caregiver regarding which gross motor skills are present, emerging, or absent; (d) determine motor function over time; and (e) evaluate intervention treatment.

Direct observation of the child is required to administer the AIMS. Very little handling is necessary. Each item of the assessment is given a score of either "pass" or "fail" and the number of passing scores is totaled. An age level for each stage of development is determined and then compared to a norming sample to establish a percentile rank. Care must be taken when utilizing percentile ranks since large changes in the ranking can occur with only small changes in a child's raw score.<sup>2,20</sup>

The **Movement Assessment of Infants (MAI)**<sup>2,21</sup> is a criterion-referenced test created by Chandler and associates<sup>21</sup> used to assess motor function in high-risk infants up to 12 months of age. It is one of the only assessment tools in which consideration is given to the quality of movement found in infants. As well as identifying motor dysfunction, this instrument is intended to aid development of early intervention programs for high-risk infants, be used for research in movement assessment, to monitor efficacy of physical therapy intervention in high-risk infants, and to enable clinicians to acquire

competent observation skills when evaluating infant motor development. The MAI is not, however, designed to diagnose or identify the cause of delays found in infants. Using 65 test items, the MAI examines four areas:<sup>1,21</sup> (a) muscle tone, which is the response of muscles to gravity; (b) automatic reactions, which include equilibrium, protective, and righting reactions; (c) volitional movement, which refers to normal motor milestones, responses to sound and sight; and (d) primitive reflexes, which deals with their integration. It was noted by Harris and associates<sup>22</sup> that no amount of under-referral was found when utilizing the MAI. Many studies<sup>2</sup> have been conducted regarding the reliability and validity of the MAI resulting in a wide range of results. However, It is suggested that in order for the MAI to be considered a solid clinical assessment tool, more studies are needed to determine exact reliability and validity.<sup>2</sup>

Administration of the MAI is lengthy (approximately 90 minutes) and requires a considerable amount of handling by the therapist in order to assess tone and elicit behaviors. Direct observation is also required to detect spontaneous activity. The MAI may be administered by anyone who has experience working with developing infants: physical and occupational therapists, physicians and nurses, etc. The provided MAI manual<sup>21</sup> indicates what little, specific equipment is required for test administration. Scoring criteria is specific for each test item and a given score must be based on the actual performance observed. A numeric score is assigned for each item. Profiles for typical four-, six-, and eight-month-old infants are provided in the manual. These profiles are used for comparison with the child undergoing assessment, since the



test does not allow for any other means of calculating an actual developmental score for the infant. However, the test does allow for a calculation of “degree of risk” for an infant indicating divergence from the norm.<sup>2,21</sup>

### Comprehensive Developmental Tests

Comprehensive developmental tests assess all areas of a child’s development by looking at the whole child. These tests include examination in areas of development such as cognition, sociability, gross and fine motor, language, and self-care.<sup>2</sup> The Bayley II and the Early Intervention Developmental Profile (EIDP) are two such comprehensive developmental assessments.

The **Early Intervention Developmental Profile (EIDP)**<sup>2,23</sup> is a comprehensive assessment of development that was created at the University of Michigan for children birth to 36 months. This test is not standardized and is not designed to diagnose a child or predict a level of future ability. Instead, this tool should be used to ascertain areas of strengths and weaknesses in a child so that developmental agendas can be established. The EIDP utilizes six scales along with their accompanying developmental norms: self-care, language, social, emotional, cognitive, gross and fine motor.<sup>2,23</sup> The gross motor scale is based on neurodevelopmental theories (i.e., Bobath), the cognitive scale on works by Piaget, and the social-emotional scales on the emergence of a child’s ego and emotional attachment to its mother.<sup>2,23</sup> The EIDP test-retest reliability ranges from 93% to 98% and inter-observer reliability from 80% to 97%. Content validity of the EIDP is documented in the manual.<sup>2,23</sup>

The EIDP may be administered in its entirety by one of several different disciplinary professionals: psychologist, physical therapist, occupational therapist, special educator, or speech therapist or be partially administered, as a representative from each discipline would complete his/her respective portion of the assessment. The accompanying manual explains administration procedures.<sup>23</sup> Scores of pass ("P"), fail ("F"), pass-fail ("PF"), or omitted ("O") are assigned to items administered.<sup>2,23</sup> A "passing" score indicates that all criteria for the item were met. A "failing" score means the child was unable to meet all criteria for a particular item. A "pass-fail" score signals the observation of a skill beginning to surface. And finally, an "omitted" score represents an item the evaluator did not test. Ceiling and basal levels are determined and utilized in the EIDP and are considered when planning a child's developmental agenda.<sup>2,23</sup> The provided testing booklet can be used more than once for scoring and interpretation so that a child's developmental progress can be tracked over time.

The **Bayley II**<sup>2,24</sup> is a comprehensive, norm-referenced developmental scale formulated by Nancy Bayley<sup>21</sup> and is a revision of the earlier Bayley Scales of Infant Development (BSID).<sup>2,24</sup> This test assesses the current developmental functioning in children. The Bayley II relies on observation of and interaction with the child. It is appropriate for children 1 month to 42 months of age. Utilization of this test is suitable for children with or without disabilities. Specifically, the test manual<sup>24</sup> addresses such disabilities as pre-maturity, developmental delays, autism, Down syndrome, HIV infection, birth asphyxiation, and prenatal drug exposure.

Three scales make up the Bayley II instrument: The Mental Scale, The Motor Scale, and The Infant Behavior Record. The Mental Scale containing 178 items addresses areas such as learning, memory, and problem solving. The Motor Scale using 111 items deals primarily with motor control and gross and fine motor skills. The Infant Behavior Record contains 30 test items and is recorded after administering the test. This scale represents a child's social skills, pointing out attributes such as energy level, interest, and attitudes.<sup>2,24</sup> Not all of these items are administered in each assessment. Specific instructions are included for every test item.

The Bayley II instrument takes approximately 45 minutes to administer, although this time may vary. Items on the test may be administered in differing sequences if circumstances so require. The testing setting may too be altered depending on the needs of the administrator, child, and family. The administrator must be formally trained and validated in order to use the test. Administration requires the use of a child's corrected chronological age, if necessary. The administrator must also determine basal and ceiling levels for scoring and interpretation as indicated by the test manual.<sup>2,24</sup> Parent report of a test item may only be accepted where specifically indicated in the test manual.<sup>2,24</sup> The test administrator may use reinforcement during testing if needed. The Bayley II test kit contains everything needed for administration except a balance board and stairs. Five scores are available for each item on the test: pass ("P"), fail ("F"), omit ("O"), refuse ("R"), or reported by caregiver ("RPT").<sup>2,24</sup> A "pass" score is given points; all other scores are used for reflection on the child's

performance. Raw scores are then transformed into Mental Development and Psycho-motor Development Indices (MDI and PDI) according to the norms for a child's age.<sup>2,24</sup> These norms are provided in tables within the manual.<sup>24</sup>

According to a study by Koseck,<sup>25</sup> more research is needed to strengthen the clinical validity of the Bayley II. Test/retest reliability coefficients for the motor and mental scales of the Bayley II are .78 and .87, respectively. The inter-rater reliability coefficient for the motor scale is .75 and .96 for the mental scale. Information regarding how the reliability studies were performed, however, is not sufficiently available in the test manual.<sup>2,24,25</sup>

Advantages of the Bayley II are the flexible format for administration and test kit in which everything that is needed for test administration is included. The Bayley II also provides a comprehensive evaluation of a child using its three scales. Disadvantages of the Bayley II are the lack of information regarding reliability studies and the lack of theoretical foundation for which the test was based. Also, the Bayley II does not allow for emerging skills to receive credit during scoring nor does the test provide enough information to develop a treatment program.<sup>2,24</sup>

### Functional Assessment Tests

Tests of functional capability determine the level of functional success a child is experiencing at home and/or at school. These assessments examine areas including self-care, mobility, and level of need for assistance and/or adaptations.<sup>2</sup> Examples of functional capability instruments include the

Functional Independence Measure for Children (WeeFim) and the Pediatric Evaluation of Disability Inventory (PEDI).

The **Pediatric Evaluation of Disability Inventory (PEDI)**<sup>2,3,26</sup> is a standardized, norm-referenced, and criterion-referenced tool that examines functional capabilities and functional performance in infants and children. Functional capability refers to the level at which a child has mastered a functional skill; whereas, functional performance refers to the amount of assistance and/or adaptation a child requires.<sup>2,26</sup> The PEDI is a predictive measure of assessment that can provide an estimation of a child's prognosis or future level of function. The PEDI is designed for use with individuals 6 months to 7.5 years or for those who function at a level below that expected for individuals who are 7.5 years old with no limitations. This instrument has inter-interviewer reliability at 0.96 to 0.99 and has construct and concurrent validity.<sup>2,26</sup>

The PEDI assesses specifically self-care, social function, and mobility using scales that address functional skill, the amount of caregiver assistance necessary, and the level of modifications required.<sup>2,3,26</sup> A score of a "0" or "1" can be assigned when scoring the PEDI. Clear mastery of a test item must be demonstrated or a reported fact in order to achieve a score of "1." Scores for these areas are reported in the provided booklet so that profiles or summaries of scores may be created regarding the child's performance. In doing so, two sets of summary scores are created, normative standard scores and scaled scores.<sup>2,3,26</sup> Normative standard scores refer to the comparison of the level at which the child is versus the level of a child without difficulties of the same

chronological age.<sup>2,26</sup> A scaled scores compares the child's score to the total amount of points possible within a specific domain.<sup>6</sup> These items are scored from 0 to 100.<sup>2,26</sup> Raw scores are converted to standard scores based on the child's chronological age. Scaled scores in each domain provide an estimation of the child's level of capability regardless of age. The PEDI also allows for generation of a frequency measurement that describes the amount of modifications necessary for a child's ability to function.<sup>2,26</sup> No composite scores are determined using the PEDI. It is recommended that when used with a child who was born premature, the PEDI should be scored according to both chronological and adjusted age levels to find differences in scores.<sup>2,26</sup>

Both health care providers and educators may administer the PEDI; however, specific training is necessary so that the administrator is competent with the criteria within the assessment. Guidelines for administering the PEDI are described in the PEDI manual provided.<sup>26</sup> Additionally, the administrator must be familiar with the child who is undergoing assessment, otherwise an interview with the caregiver is appropriate in order to obtain information. Either way, to correctly gain the information necessary to complete the PEDI, the information-provider must have had several observations of the child so that an accurate picture of the child's performance may be illustrated.<sup>2,26</sup>

The **School Functional Assessment (SFA)**<sup>27</sup> is a criterion-referenced, subjective, functional assessment measure that is in questionnaire format. The SFA is designed for use with children who are elementary school age (K through grade 6). The SFA is completed by one or more school professionals who have

observed a child's typical performance in school related tasks. The SFA administrator must be familiar with the child in the academic setting as well as familiar with what peers the same age as the child are capable of doing. The test can be administered in 1.5 to 2 hours or administered in smaller segments of time over the course of two to three weeks.

The SFA is designed to assess a child's level of participation in various school-related activities. Much of these activities are in fact developmental items; however, emphasis is on their importance in the school environment. The child's participation is examined according to various settings, resource needs, and his or her accomplishments of school-related tasks. Nearly all assessment items of activity participation and task accomplishment are recognized using the SFA no matter how the child does. The SFA was designed with the needs and special situations of children with disabilities in mind.<sup>27</sup> The SFA is divided into three parts.

Part I involves *participation* in six school activity settings.<sup>27</sup> Ratings in this part of the SFA reflect the child's ability to interact with the social and physical contexts of each school activity setting. The six school activity settings include regular or special classrooms, mealtime/snack time, transportation to and from school, transitioning between rooms, playground/recess, and bathroom/toileting. The child is rated on a six-point scale ranging from "full participation" to "non-participation" for each setting.<sup>27</sup>

Part II examines the amount of *supports* a child needs to perform school-related tasks.<sup>27</sup> Supports are considered to be those that are generally beyond

what is typically provided to all students. Support can be provided by adult assistance or by specific adaptations including modification of routines, instructions, or equipment. Both the amount of adult assistance and adaptations required are scored on a four-point scale ranging from “none” to “extensive.” Both supports are also further specified as to whether they are used for physical tasks and/or cognitive/behavioral tasks as examined in Part III.<sup>27</sup>

Part III is divided into two sets of activities that assess *physical activity performance* (12 scales) and *cognitive/behavioral activity performance* (9 scales).<sup>27</sup> Examples of the physical scales include items such as hygiene, maintaining and changing positions, setup and cleanup, and eating and drinking. Examples of the cognitive/behavioral scales include items such as behavior regulation, safety, memory and understanding, and functional communication. Each scale is examined according to the child’s performance on the entire set of activities within the scale. The child’s performance on each activity within a scale is rated in comparison to peers of the same age or grade on a four-point scale ranging from “consistent performance” to “does not perform.”<sup>27</sup>

Scoring of the SFA begins determining raw scores for each scale within each part. Then a total raw score is tallied. Each raw score is also converted to a criterion score using tables in the manual’s appendix. Criterion scores are then plotted to create a functional profile of the child. The SFA score form provides a Rating Scale Guide<sup>27</sup> to assist the administrator in making judgments about scoring the instrument. The SFA manual<sup>27</sup> also provides case studies to help the administrator make decisions regarding scoring.



Reliability studies using the coefficient alpha procedure estimated the internal consistency of the SFA to range between .92 and .98.<sup>27</sup> The process of determining validity of the SFA has begun, but further studies are required. Validity studies at this time indicate that therapists rated the SFA higher as a useful tool than teachers. These ratings are thought to reflect each group of professional's perceptions as to what is relevant information obtained by the test for program planning.

One advantage of the SFA is that it can be administered using just the score form. The test manual is not needed for administration. Also, information obtained by the SFA regarding a child's functional strengths and limitations can be used as a guide for program planning and evaluation. And, the SFA can be used to determine eligibility for special services.<sup>27</sup>

The **Functional Independence Measure for Children (WeeFIM)**<sup>2,28</sup> is a criterion-based assessment tool that examines functional capabilities in children with disabilities. It is a direct adaptation of the adult version, the FIM,<sup>2,28</sup> and was created by a multidisciplinary team of professionals. The WeeFIM is designed to supplement other forms of detailed clinical assessment. This instrument examines the following six minimal areas of function utilizing 18 activities: mobility, communication, sphincter control, sociability, locomotion, and self-care.<sup>2,28</sup> Consistent performance by individuals in these areas is emphasized. Use of the WeeFIM is intended for children six months to seven years of age or for persons of any age whose mental and/or developmental age is seven years or less. Thus, over time, the WeeFIM can be used to track an individual's

functional independence. Research has shown that the WeeFim is most useful for children aged two to five years.<sup>2,28,29</sup>

The WeeFIM is reported to have test-retest reliability at 0.99 and interrater reliability at 0.95.<sup>2,28</sup> Additionally, this instrument contains content, construct, and discriminative validity and is considered to be a legitimate measure of functional independence as it relates to disability.<sup>2,28,29</sup>

The WeeFIM may be administered by any health care or education provider; however, it is important that they be trained to administer it correctly. Administration time of the WeeFim is 45 to 60 minutes. Understanding the WeeFIM involves training workshops, a training videotape, and consultation of the accompanying guide before it can be administered. Use of the WeeFIM results in a common language about a child's functional ability no matter what discipline the administrator represents.

Scoring of the WeeFIM involves direct observation and assigning a score for an activity according to a seven-point range of function scale.<sup>2,28</sup> According to the scale, complete independence = "seven," whereas complete dependence = "one." Interpretation of scores reveals the degree in which an individual's disability affects his or her success in functional activities of daily living.

Many of the assessment instruments that have been examined in this chapter were inquired about in a survey created for purposes of this research. Data obtained by the survey regarding these instruments are central to appreciating and answering the research questions generated for this study. An

explanation of the methodology used for obtaining the data is presented in the following chapter.

## CHAPTER III

### METHODOLOGY

This survey research project was funded by a grant received from the Physical Therapy Department of the University of North Dakota. The project was designed to identify and examine pediatric assessment instrument usage by physical therapists practicing in Minnesota and North Dakota.

#### Objectives

This research methodology was a survey questionnaire that would produce information regarding (a) the trends in assessment instrumentation selection and usage, purpose and frequency; (b) the advantages and/or disadvantages of specific assessment instruments; and (c) the PT entry-level competencies in administering instruments that should be required of students.

#### Subjects

Eighty-four (84) physical therapists practicing in pediatrics within the states of Minnesota and North Dakota were selected for the survey questionnaire mailing. These subjects were identified as members of the American Physical Therapy Association (APTA) pediatrics section by the Minnesota and North Dakota state representatives. (See Appendix A.) These individuals had given permission for the release of their names and addresses. Subjects were informed that participation in the study was optional and their decision to

participate or not would not jeopardize their relationship with the Physical Therapy Department at the University of North Dakota. Completion and return of the survey would indicate consent by the individual to participate in the study. Subjects did not receive any monetary compensation for their participation in this research. Approval for the use of human subjects was granted by the University of North Dakota Institutional Review Board (IRB) on August 2, 2000. (See Appendix B.)

#### Instrumentation

Questions that would address the previously stated objectives for the study were generated. A survey questionnaire containing thirteen (13) questions was then constructed for mailing as well as a cover letter to accompany it. (See Appendix C.) Included in each survey mailing was a pre-addressed and postage-paid envelope so that completed surveys could be returned to the Physical Therapy Department at the University of North Dakota for data analysis.

#### Procedure

On August 30, 2000, survey questionnaires accompanied by cover letters and pre-addressed and postage-paid envelopes were mailed to the 84 subjects previously identified. The cover letter invited individuals to participate in the research and explained the purpose and procedures of the study. The subjects were informed that the survey would take approximately five minutes to complete and that return of the survey would be appreciated by September 13, 2000. The cover letter also assured individual confidentiality in completing the survey and thanked the subjects in advance for their participation. Responses were coded

to protect subject confidentiality. On September 13, 2000, a postcard reminder was sent to non-respondents to encourage them to complete and return the survey. A second mailing of the same cover letter and survey was sent to the remaining non-respondents on September 27, 2000, requesting them to complete and return the survey by October 11, 2000. The closing date for return of the surveys was October 11, 2000. The pre-addressed and postage-paid envelopes that the subjects used to return the surveys were coded such that responses could not be linked with any participant. Information obtained from each survey was analyzed and then stored in a locked file in the office of Dr. Peggy Mohr. Only Dr. Mohr and I have access to the data. After a period of three years, the data will be destroyed.

#### Data Analysis

Data from returned surveys were entered into a computer and analyzed using the Statistical Package for Social Sciences (SPSS 10.0.7). Additional data from the returned surveys were hand tallied for analysis. Descriptive statistics identified were frequencies, measures of central tendency (mode), and some percentages. An explanation of the results is provided in text format, in tables, and in bar graphs. Confidentiality was maintained for all aspects of the data analysis.

## CHAPTER IV

### RESULTS

Eighty-four pediatric assessment tool questionnaire surveys were sent to physical therapists. Sixty surveys were returned; however, only 55 of the surveys were eligible for data analysis. The calculated response rate for this questionnaire survey was 65 percent.

This questionnaire survey contained a total of 13 questions. Seven of the survey questions gathered information relative to the specific research questions central to this study: Which pediatric assessment instruments are being utilized, why, and how often; what are perceived advantages and/or disadvantages of specific instruments available; what instruments are thought to be those required for competency in entry-level physical therapists? The other six questions gathered characteristic information relative to the therapists who responded to the surveys (i.e., practice settings and professional training) and information about professional need areas in pediatric assessment instrumentation. The frequencies of each response and the mode of the response frequencies were calculated for each question as well as some percentages. Each question and its responses are presented in a table format at the end of this chapter.

## Survey Questions and Responses

**(Question #1) What percentage of your practice is in pediatrics?**

Fifty percent of the responders (27 individuals), indicated that 100% of their practice was in pediatrics and 10 responders reported that 76% to 99% of their practice was in pediatrics. The remaining 17 individuals who responded indicated their practice was between 1% and 75% pediatrics.

Table 1. Question #1 – Survey Response Frequencies and Mode

Response	Frequency	Mode
Up to 10%	6	
11 to 25%	3	
26 to 50%	1	
51 to 75%	7	
76 to 99%	10	
100%	27	X

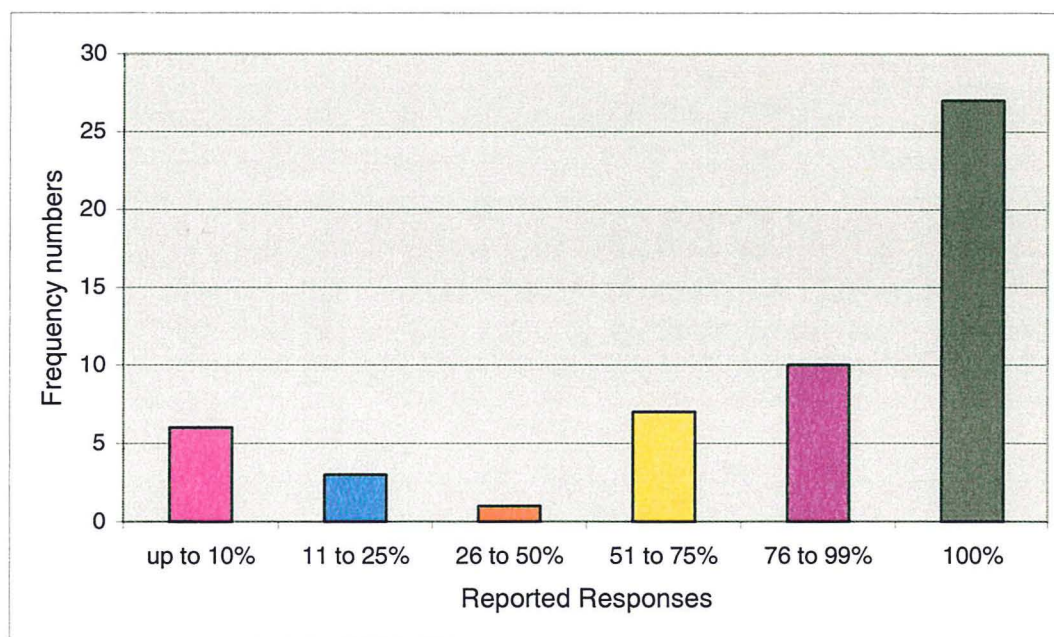
**(N = 54)**

Figure 1. Question #1 – Reported percentages of pediatric practice by practitioners.



**(Question #2) What type of setting are you practicing in?**

Several individuals responded with more than one practice setting.

Eighty-five percent of responders comprised those that are practicing in either a school system or in an outpatient setting (24 individuals are employed with a school system and 23 individuals are employed in an outpatient setting). The remaining 20 physical therapists who responded to this question are either practicing in home health, inpatient, private practice, or some other setting. Zero (0) responders indicated practicing in a consultative capacity.

Table 2. Question #2 – Survey Response Frequencies and Mode

<b>Response</b>	<b>Frequency</b>	<b>Mode</b>
Inpatient	7	
School system	24	X
Private practice	3	
Out-patient	23	
Consultative	0	
Home health	9	
Other	1	

**(N = 55)**

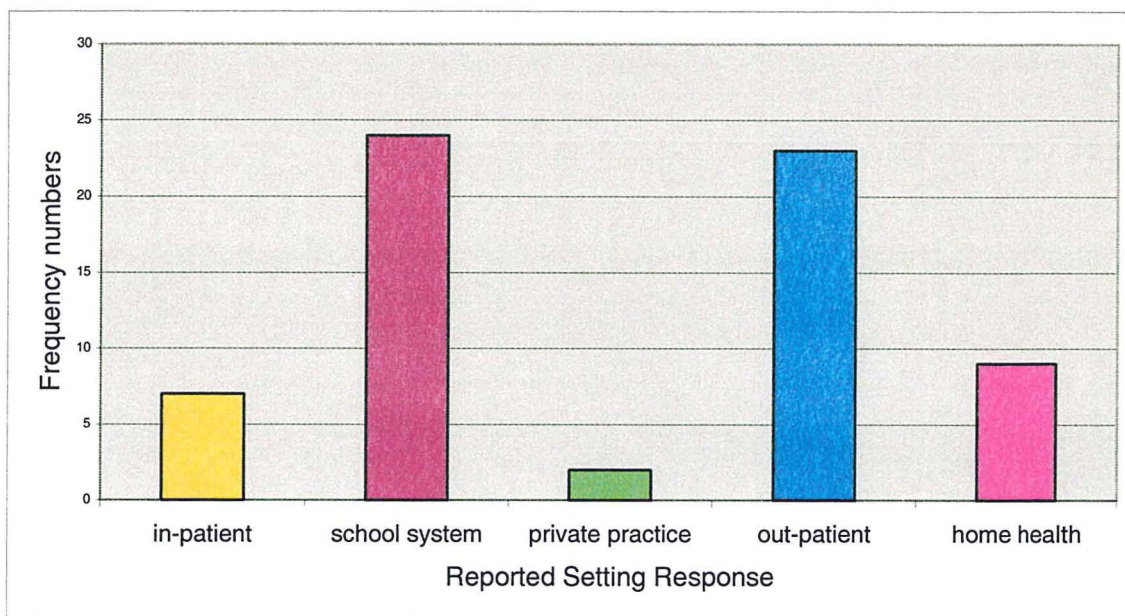


Figure 2. Question #2 – Reported pediatric practice settings.

**(Question #3) Which population distribution is most characteristic of your primary practice setting?**

Seventy-seven percent of those who responded are employed in populations of at least 2,500 people. Only one person indicated exclusively practicing in rural home health. Otherwise, the remaining 21% of responders were practicing in combinations of rural home visits and in communities of at least 2,500 people.

Table 3. Question #3 – Survey Response Frequencies and Mode

Response	Frequency	Mode
More than 100,000	16	
Between 25,000 and 100,000	18	X
Between 2,500 and 25,000	7	
Rural home visits	1	
Combinations of the above	11	

(N = 53)

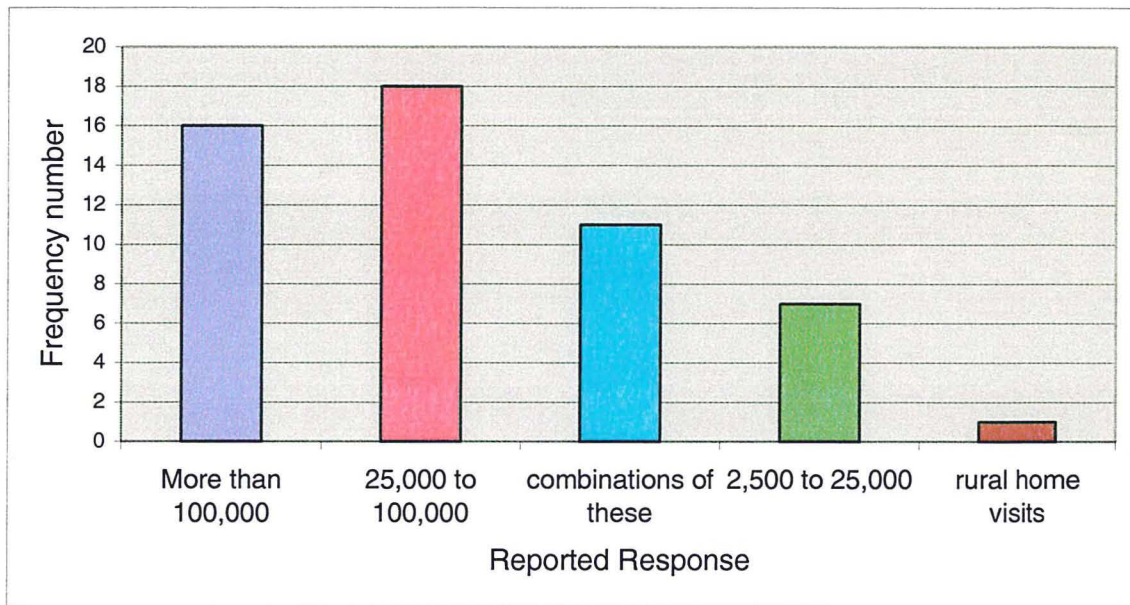


Figure 3. Question #3 – Reported population distributions of respondent's pediatric practice settings.

**(Question #4) Length of professional experience in pediatrics, full-time or part-time:**

Thirty-five percent of those who responded have been practicing in pediatrics for over 20 years. Fifty-three percent of responders have been practicing a minimum of 2 years and up to 20 years in pediatrics. Only 11% of those practicing in pediatrics reported having less than 2 years experience.

Forty-two of the 54 responders to this question indicated whether their professional experience was on a full-time or part-time basis. Sixty-two percent indicated they were employed on a full-time basis only and 31% reported part-time employment only. Three individuals (7%) reported both full-time and part-time employment as characteristic of their professional experience in pediatrics.



Table 4. Question #4 – Survey Response Frequencies and Mode

Response	Frequency	Mode
Up to 2 yrs	6	
2 to 5 yrs	8	
5 to 10 yrs	9	
11 to 15 yrs	5	
16 to 20 yrs	7	
Over 20 yrs	19	X

(N = 54)

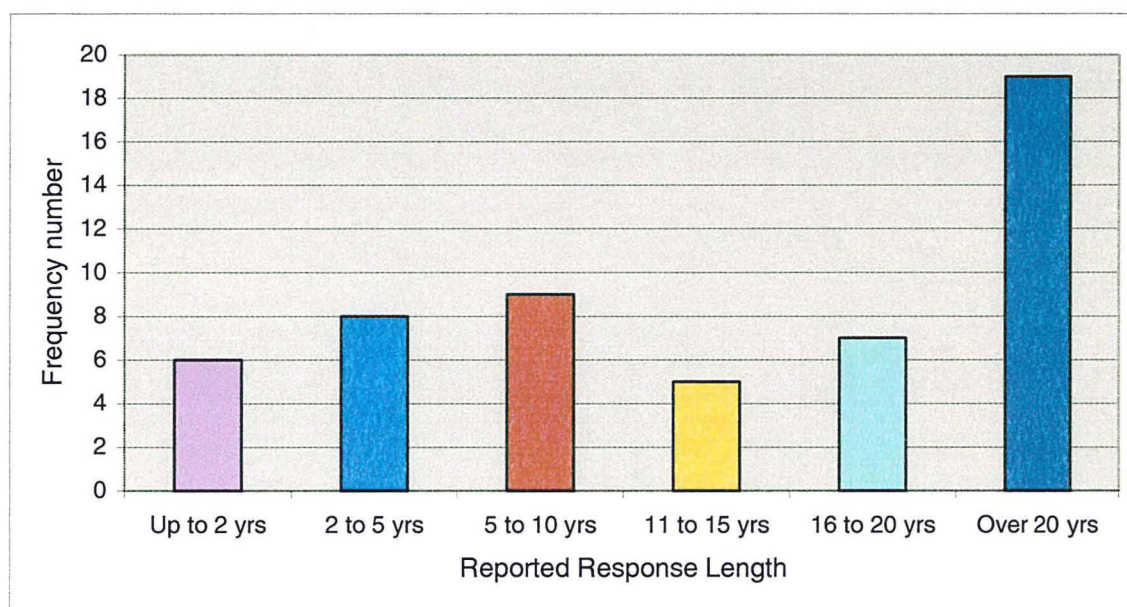


Figure 4. Question #4 – Reported lengths of professional experience in pediatrics.

Table 5. Question #4 continued – Survey Response Frequencies and Mode

Response	Frequency	Mode
Full-time	26	X
Part-time	13	
Both	3	

(N = 42)

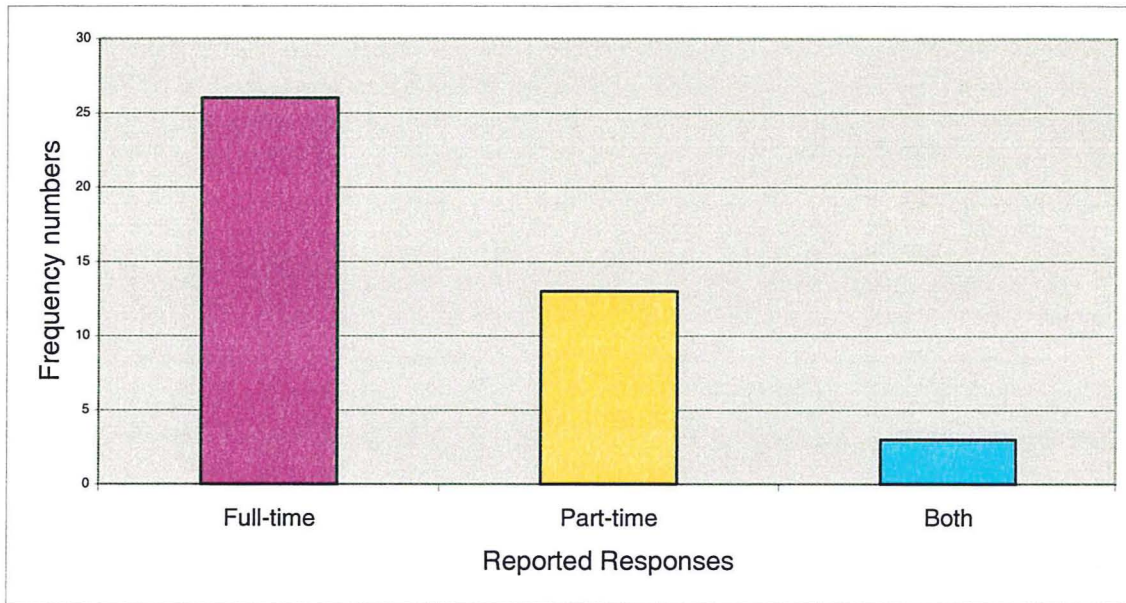


Figure 5. Question #4 continued – Reported full-time or part-time professional pediatric experience.

**(Question #5) What is your professional training?**

Over half of the responders (56%) indicated holding a BSPT degree.

Thirty-eight percent reported having a master's degree in physical therapy, either a MPT or a MSPT. Nine other responses for professional training included such credentials as Ph.D. PT, BA PT, MA and Education, Masters of Public Health, and MS in ECSE (Early Childhood and Secondary Education).

Table 6. Question #5 – Survey Response Frequencies and Mode

Response	Frequency	Mode
BSPT	31	X
MPT	13	
MSPT	8	
Others	9	

(N = 55)

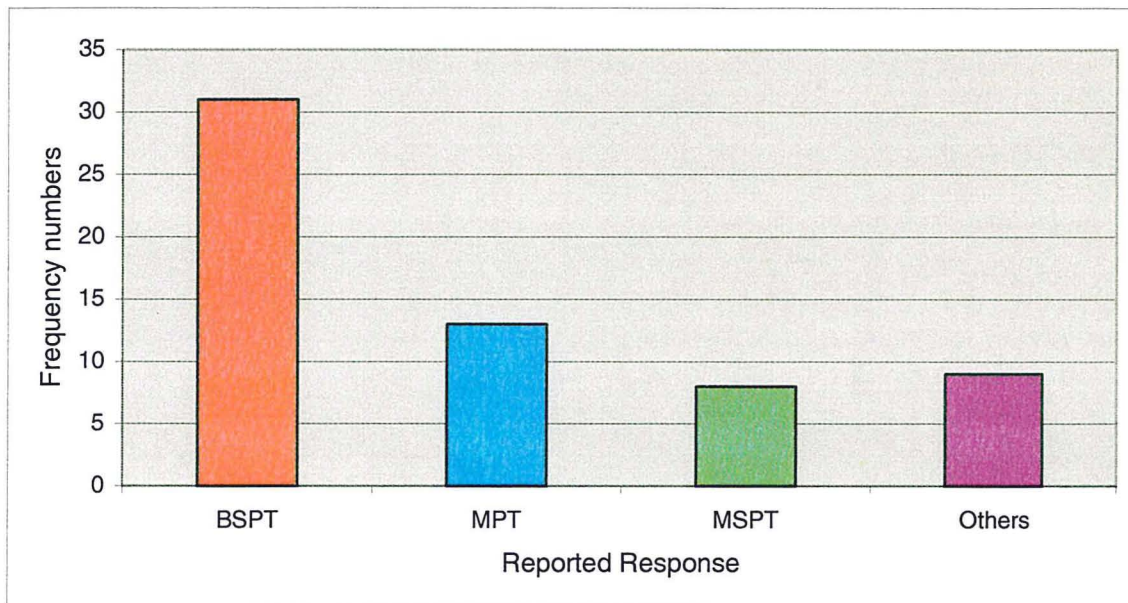


Figure 6. Question #5 – Reported professional training.

**(Question #6) What certification(s) do you currently have?**

No one indicated being a pediatric specialist. However, other responses included certifications in Neuro Developmental Techniques (NDT), Sensory Integration Physical Therapy (SIPT), Therapeutic Electrical Stimulation (TES) and Aquatic Therapy; Certified Infant Massage Instructor (CIMI); Feldenkrais practitioner; and APTA Credentialed Clinical Instructor.

Table 7. Question #6 – Survey Response Frequencies and Mode

Response	Frequency	Mode
Pediatric Specialist	0	
Others	17	X

**(N = 17)**



**(Question #7) Please indicate any of the following instruments you currently use in your practice:**

Eighty-one percent of responders (44 therapists) indicated they utilize the Peabody Developmental Motor Scales (PDMS) in their practice, 67% of responders (36 therapists) reported using the Bruininks-Oseretsky Test of Motor Proficiency (BOT) in their practice, 65% of responders (35 therapists) stated using the Pediatric Evaluation of Disability Inventory (PEDI) in their practice, and 41% of responders (22 therapists) indicated utilizing the Gross Motor Performance Measure (GMPM) in their practice. The Bayley II, the WeeFim, the Denver II and the AIMS were used by a combined total of 36 respondents. Respondents also listed several other assessment instruments as currently used in their practice. The following are those instruments which are utilized by five or more people: The School Functional Assessment (SFA), the Michigan Early Intervention Developmental Profile (EIDP), the Hawaii Early Learning Profile (HELP), the Gross Motor Functional Measure (GMFM), and the MOVE (Mobility Opportunities Via Education) curriculum. Thirteen other assessment instruments were also specified as being utilized. However, due to each instrument's low frequency (less than 5), the data are not considered significant and will not be reported.

Table 8. Question #7 – Survey Response Frequencies and Mode

Response	Frequency	Mode
Peabody	44	X
Bayley II	17	
WeeFim	4	
Bruininks-Oseretsky	36	
Gross Motor Performance Measure	22	
Denver II	12	
PEDI	35	
AIMS	3	
(Other) SFA	11	
(Other) EIDP	7	
(Other) HELP	6	
(Other) GMFM	5	
(Other) MOVE	5	
Others	15	

(N = 54)

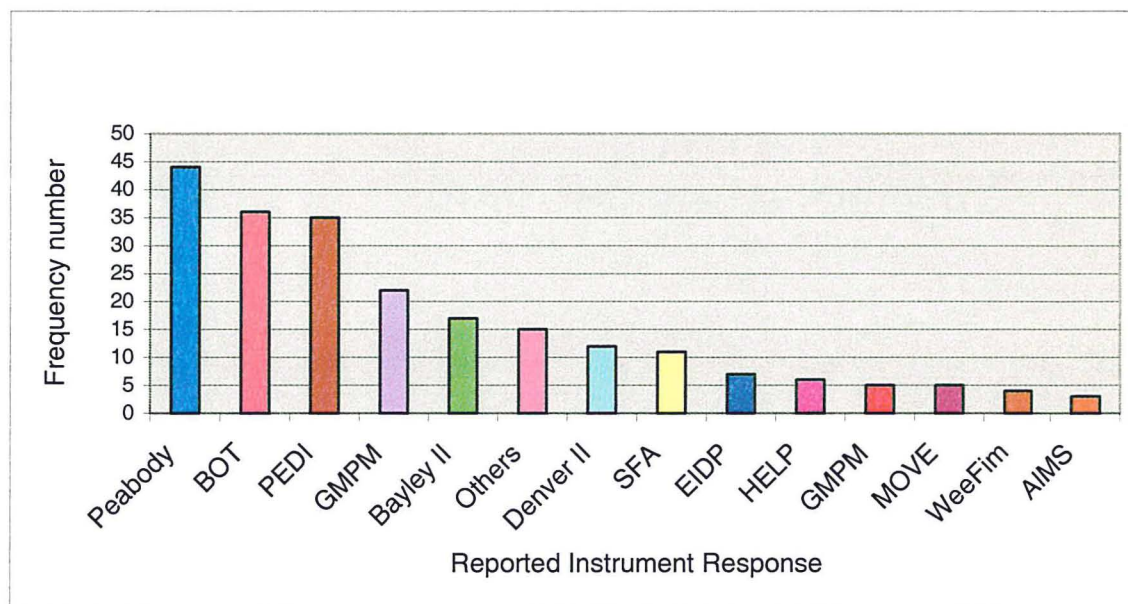


Figure 7. Question #7 – Reported assessment instruments utilized in practice.



**(Question #8) Describe how frequently you use the following instruments:**

A frequency of “0 to 5 times per month” was indicated for pediatric assessment instruments reported as being used in practice. Seven instruments, (1) PDMS, (2) Bayley II, (3) BOT, (4) GMPPM, (5) Denver II, (6) PEDI, and (7) HELP, each had 1 response indicating that they were utilized in practice “16 to 20 times per month.” This response frequency is the highest listed for any of the assessment tools discussed. No therapist reported using any one assessment instrument “more than 20 times per month.”

Table 9. Question #8 – Survey Response Frequencies

	0 to 5 times per month	6 to 10 times per month	11 to 15 times per month	16 to 20 times per month	More than 20 times per month	No frequency indicated
<b>Peabody</b>	32*	9	1	1	0	1
<b>Bayley II</b>	14*	0	0	1	0	2
<b>WeeFim</b>	1*	0	0	0	0	3
<b>Bruininks- Oseretsky</b>	32*	1	0	1	0	2
<b>Gross Motor Perform. Measure</b>	17*	1	1	1	0	2
<b>Denver II</b>	8*	0	0	1	0	3
<b>PEDI</b>	31*	3	0	1	0	0
<b>AIMS</b>	2*	0	0	0	0	1
<b>(Other) SFA</b>	9*	0	0	0	0	2
<b>(Other) EIDP</b>	5*	1	0	0	0	1
<b>(Other) HELP</b>	2*	0	0	1	0	3
<b>(Other) GMFM</b>	4*	0	0	0	0	1
<b>(Other) MOVE</b>	4*	0	0	0	0	1
<b>Others</b>	7*	1	0	0	0	7

(N = 54)

Each number indicates the frequency in which a response was chosen.

\*Indicates the mode of the response frequencies for the corresponding instrument.

**(Question #9) For what purpose(s) do you seek assessment scores?**

Sixty-nine percent of responders indicated that assessment scores are required for eligibility determination and for proof of treatment efficacy. Forty-three percent reported that third party payers require assessment scores. Only

11% seek assessment scores for purposes of research. Twenty-one other responses were tallied on a variety of other common purpose themes for which therapists seek assessment scores. Most significant of those themes (with frequencies of 3 or more) were (a) to establish a level of function, (b) to identify progress, and (c) to facilitate program planning.

Table 10. Question #9 – Survey Response Frequencies

Response	Frequency	Mode
Eligibility requirements	37	X*
Third party payer requirements	23	
Proof of treatment efficacy	37	X*
Research	6	
Others	21	

(N = 54)

\*Indicates that frequency response is bi-modal for purposes.

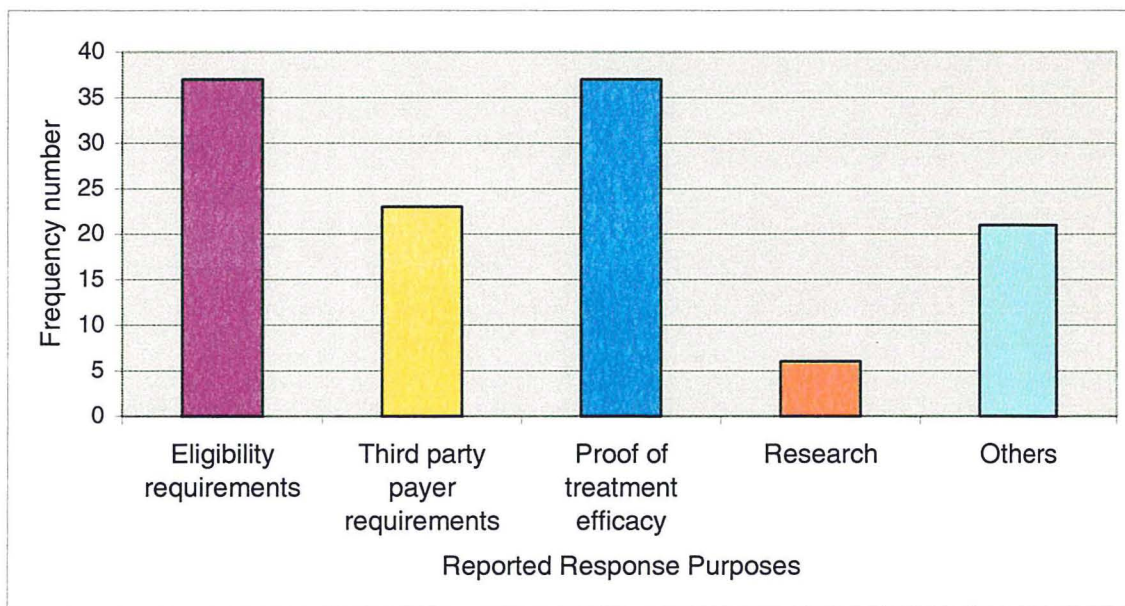


Figure 8. Question #9 – Purposes for seeking assessment scores.

**(Question #10) In what format do you most frequently administer the following instruments?**

With the exceptions of the EIDP and the HELP assessments, all of the pediatric assessment instruments that were reported as being utilized in practice were administered most often in the formal application format as indicated by the manual. Three responders indicated using the EIDP in the formal manual application format and three responders also stated they used an adapted checklist format when administering the EIDP. The HELP assessment was most often administered utilizing an adapted checklist format as reported by two responders. The four responders who stated they used the WeeFim did not indicate a format in which they administered the test. Thirteen individual also indicated that they use more than one format for administration of the PDMS, the BOT, the GMPM, and the PEDI, but did not specify which formats.

Table 11. Question #10 – Survey Response Frequencies

	<b>Formal application as indicated by the manual</b>	<b>Adapted checklist format</b>	<b>Other adapted checklist format</b>	<b>More than one of the preceding formats (formats not specified)</b>	<b>No format indicated</b>
<b>Peabody</b>	32*	3	3	4	2
<b>Bayley II</b>	13*	0	1	0	3
<b>WeeFim</b>	0	0	0	0	4
<b>Bruininks-Oseretsky</b>	27*	1	1	4	3
<b>Gross Motor Perform. Measure</b>	16*	1	0	1	4
<b>Denver II</b>	6*	2	0	0	4
<b>PEDI</b>	26*	4	0	2	3
<b>AIMS</b>	1*	0	0	0	2
<b>(Other) SFA</b>	5*	4	1	0	1
<b>(Other) EIDP</b>	3**	3**	0	0	1
<b>(Other) HELP)</b>	0	2*	0	0	4
<b>(Other) GMFM</b>	4*	0	0	0	1
<b>(Other) MOVE</b>	3*	0	0	1	1
<b>Others</b>	5*	3	1	1	5

**(N = 54)**

Each number indicates the frequency in which a response was chosen.

\*Indicates the mode of the format responses for the corresponding instrument.

\*\*Indicates that the instrument is bi-modal for format response.

**(Question #11) What do you feel are advantages/disadvantages of the following instruments?**

The survey responses provided for the responders to choose from in this question were predominantly advantages. Advantage response options outweighed disadvantage response options 4 to 2. The responder, however, had the opportunity to add a disadvantage response (likewise, an advantage response) to any assessment instrument(s) in the “other” spaces provided.

Advantage responses were higher than disadvantage responses for all assessment instruments reported. For example, advantage response frequencies were higher than disadvantage response frequencies for the PDMS and the BOT. Twenty-nine responders indicated that an advantage of the PDMS is its standardization and 19 responders indicated the same advantage for the BOT.

Table 12. Question #11 – Survey Response Frequencies

	Easy to admin.	Difficult to admin.	Quick to admin.	Time consuming to admin.	Reliable & valid	Standardized	Other(s)
<b>Peabody</b>	14	4	7	13	14	29*	1
<b>Bayley II</b>	2	0	0	5	3	7*	1
<b>WeeFim</b>	0	0	0	0	0	0	0
<b>Bruininks-Oseretsky</b>	12	4	3	10	13	19*	4
<b>Gross Motor Perform. Measure</b>	5	0	3	4	7**	7**	1
<b>Denver II</b>	3	0	5*	0	1	1	0
<b>PEDI</b>	13*	2	9	7	7	12	4
<b>AIMS</b>	1***	0	0	0	1***	1***	0
<b>(Other) SFA</b>	4*	0	1	3	1	1	2
<b>(Other) EIDP</b>	6*	0	4	0	0	0	0
<b>(Other) HELP</b>	2**	0	2**	0	0	0	0
<b>(Other) GMFM</b>	1	0	0	0	2**	2**	1
<b>(Other) MOVE</b>	2**	0	1	2**	0	0	4
<b>Others</b>	4**	1	4**	1	2	3	0

(N = 54)

\*Indicates the mode of the advantages and/or disadvantages responses for the corresponding instrument.

\*\*Indicates the instrument is bi-modal for responses of advantages and/or disadvantages.

\*\*\*Indicates the instrument is multi-modal for responses of advantages and/or disadvantages.

**(Question #12) Of the following instruments, which do you feel should be included in entry-level required PT competencies?**

Eighty-nine percent of therapists who responded indicated that the PDMS is an essential instrument for entry-level PT competency. Fifty-six percent of

responders reported the BOT as an important tool for entry-level PT competency. Fifty-two percent of individuals who responded indicated that the PEDI is a test in which entry-level therapists must be competent and 45% of respondents indicated that the GMPPM is an assessment instrument that entry-level therapists must be competent in administering. Twenty-five percent of therapists who responded indicated that the Bayley II, the WeeFim, the Denver II, the AIMS, and others should be included in entry-level required PT competencies.

Table 13. Question #12 – Survey Response Frequencies and Mode

<b>Response</b>	<b>Frequency</b>	<b>Mode</b>
Peabody	48	X
Bayley II	13	
WeeFim	7	
Bruininks-Oseretsky	30	
Gross Motor Perform. Measure	24	
Denver II	11	
PEDI	28	
AIMS	3	
Others	10	

**(N = 54)**



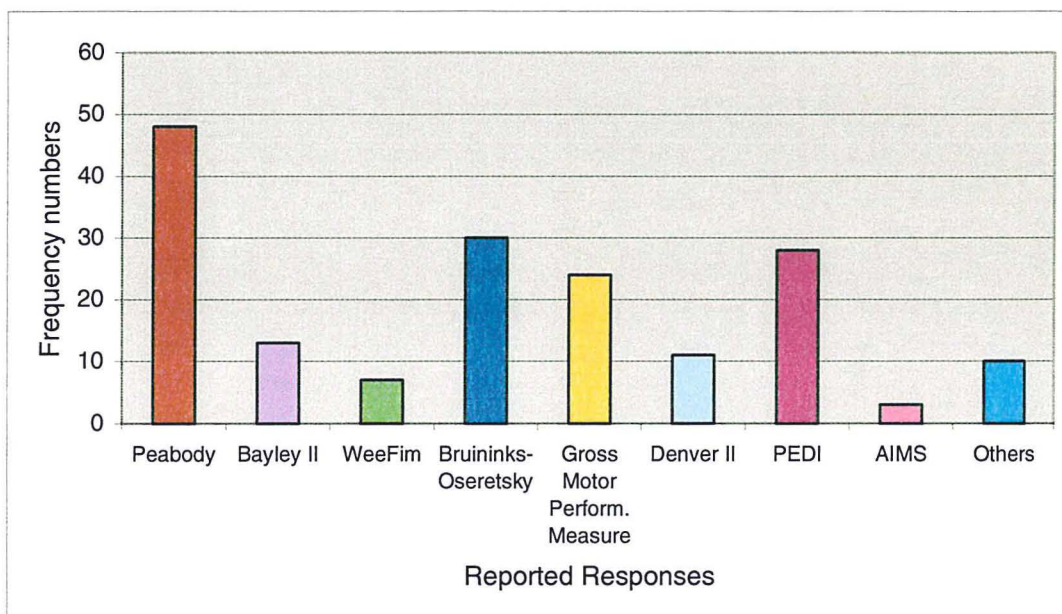


Figure 9. Question #12 – Instruments required for entry-level PT competencies.

**(Question #13) Do any of the following apply to your professional needs in pediatric assessment instrumentation?**

Seventy percent of responses indicated a need for instruments standardized on children with disabilities. Sixty-five percent of responders reported a need for instruments that assess function. Fifty-seven percent of responders stated that a need exists for quick and easily administered instruments. Thirty-eight percent of individual responses indicated that instruments that assess quality of movement are needed. Thirty-five percent of responses indicated that there is a need for more reasonably priced instruments. Twenty-six percent of responders showed that there is a need for greater choice of assessment instruments. Seven other needs were expressed relative to professional need in pediatric assessment. However, because they were not a

part of any other common theme and only had a response frequency of 1 each, they were not considered significant and will not be reported.

Table 14. Question #13 – Survey Response Frequencies and Mode

Response	Frequency	Mode
Greater choice of instruments	14	
Instruments standardized on children with disabilities	38	X
Reasonably priced instruments	19	
Quick and easily administered instruments	31	
Instruments that assess function	35	
Instruments that assess quality of movement	21	
Others	7	

(N = 54)

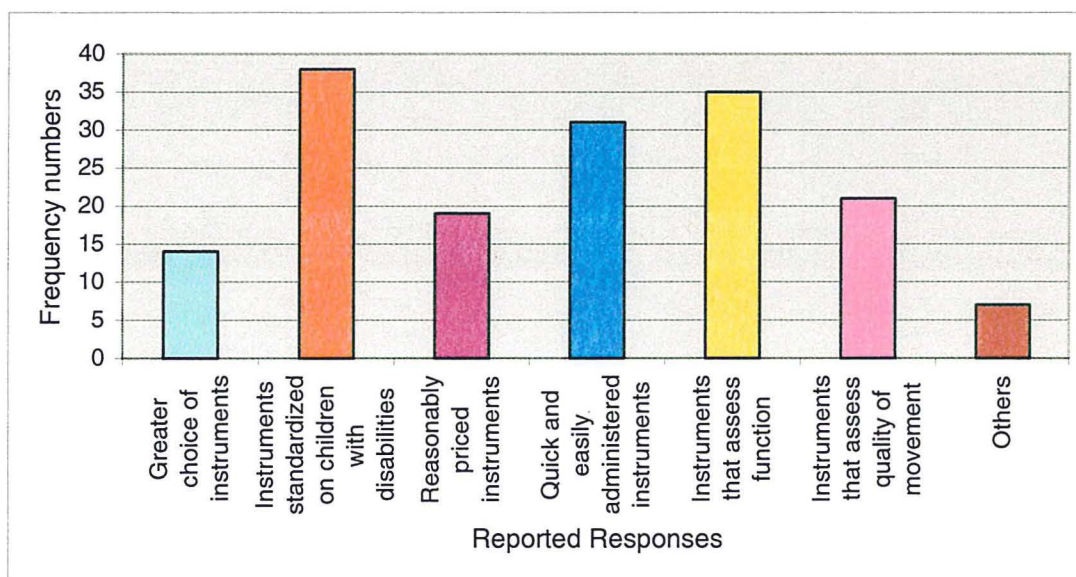


Figure 10. Question #13 – Reported areas of need in assessment instrumentation.

## CHAPTER V

### DISCUSSION

#### Research Questions Answered

A significant number (65%) of surveys regarding pediatric physical therapy assessment instruments were completed and returned by physical therapists practicing in Minnesota and North Dakota. Of those physical therapists who responded to the survey, half of them indicated that their practice was exclusively in pediatrics and 57% have 11 or more years of professional experience in pediatrics. This relatively high response rate, along with the considerable amount of experience these therapists possess, allows a few generalizations to be made. First, the responses received are probably highly reflective of physical therapists practicing in Minnesota and North Dakota. Second, these research responses are probably representative of physical therapist practice nationwide. Lastly, with respect to these two points, these research data may be useful for physical therapists when making decisions regarding pediatric assessment instrument selection.

Three pediatric physical therapy assessment instruments were indicated to be used up to ten times per month by at least half of those physical therapists who responded to the survey. These assessment instruments were the Peabody

Developmental Motor Scales (PDMS), the Bruininks-Oseretsky Test of Motor Proficiency (BOT), and the Pediatric Evaluation of Disability Inventory (PEDI).

Heavy utilization of the PDMS, the BOT, and the PEDI is probably partially due to the reported advantages of each of these tests. The majority of therapists who commented on the PDMS and the BOT said that the standardization of the instruments was the biggest advantage in the utilization of these tests. Those who commented on the PEDI indicated that standardization was a major advantage of this test also. Ease of administration of the PEDI was also reported as an advantage by an almost equal number of responders.

Another probable reason the PDMS, the BOT, and the PEDI were reported to be heavily used may be due to the purposes for which responders indicated they seek assessment scores. Sixty-nine percent of therapists who responded stated that they seek assessment scores for both of two reasons. (1) Assessment scores are a requirement in determining if a child is eligible for services or not. PDMS, BOT, and PEDI are discriminative in nature, allowing the therapist to distinguish between children who do or do not possess a specific function that may make them eligible for a service. (2) Assessment scores can provide proof of treatment efficacy by showing a child's progress. Here, too, all three of the above tests can be considered evaluative measures whereby they are useful in showing change in a child's abilities over time.

Administration of the PDMS, the BOT, and the PEDI was done so most frequently according to the formal application as indicated by each test's manual. This format held true for most of the assessment instruments that were reported.

Altered administration format may have an impact on the reliability and validity status of the tests.

When asked to identify which instruments were believed to be entry-level physical therapist competencies, over one-half of respondents indicated that the PDMS, BOT, and PEDI should be part of the repertoire of the therapist who is newly entering the work force. It is probably safe to say that this is due to the reported purposes (eligibility requirements and proof of treatment efficacy) for which assessment scores are sought and due to the indicated advantages of each of the tests (standardization and ease of administration).

A significant amount of responders indicated that there are several areas in assessment instrumentation that they believe are lacking. Most noteworthy was the lack of instruments that are standardized on children who have disabilities. Since standardization seems to be a key element for determining eligibility and since most of the children who need the assessment process do have a suspected disability, it is clear why instruments that accommodate those two aspects would be extremely useful for physical therapists. Responders also stated that there are not enough instruments available that assess function. This is not surprising considering today's health care and reimbursement systems in which levels of function are central to what services are provided and funded versus missing components of movement; for example, from days gone past. Finally, the lack of quick and easily administered instruments was of concern to therapists who responded. Obviously, less time spent on assessment procedures leaves more "quality" treatment time for the children.



### Limitations of the Study

Limitations of the study were revealed over the course of its progression.

In question #2, the instructions asked for an indication of the responder's *primary* practice setting. However, many of the surveys were returned with several of the response options marked instead of only one.

In question #4, the responders were asked to specifically indicate whether their professional experience was full-time or part-time with both of these responses offered for selection on the survey. Nonetheless, a number of surveys were returned with this portion blank.

For questions #8, 10, and 11, some responders indicated that they utilized a certain instrument, but did not indicate a frequency or an administration format. Perhaps those three questions, #8, 10, and 11, should have been broken down into smaller components where each question only inquired about one instrument at a time.

For questions # 7, 8, 10, 11, and 12, a response option was the Gross Motor Performance Measure (GMPM). It was the researcher's understanding that this test was not commonly utilized by many pediatric physical therapists, so this response option was included to investigate that understanding. The Gross Motor Functional Measure (GMFM) is a test that is commonly used by pediatric physical therapists. However, this test was not included as a response option in these questions. The similarity in the names of these two instruments may have been confusing for responders, resulting in inaccurate responses regarding the tests. Survey data did indicate a higher than expected response rate for

utilization of the GMPM. Both the GMPM and the GMFM should have been included as response options so that this confusion could have been prevented and an accurate determination made as to which instrument was utilized and how often.

Lastly, because of the way in which response options were offered, only descriptive statistics in the forms of frequencies, modes, and percentages could be reported after interpretation. Had the response options been organized into different statistical data formats, the researcher may have been able to establish correlations or made inferences regarding pediatric physical therapy instrumentation usage.

#### Further Research Recommendations

Future research on pediatric physical therapy instrumentation usage can be done successfully in much the same ways as described in the methodology portion of this study. However, based on the limitations of this study, utilizing a highly perfected questionnaire survey is key to acquiring the most meaningful and useful results possible.

#### Conclusions and Clinical Implications

Despite the limitations revealed in this study, a significant amount of useful information regarding pediatric physical therapy instrumentation usage has been obtained. This study revealed which assessment instruments are reportedly being used, why, in what format, and how often. Practicing physical therapists feel entry-level physical therapists should have competencies in various tests that were reported. Therapist's perceived advantages and/or

disadvantages of various tests and some areas of perceived need in regard to assessment instrumentation have also been identified.

This study will hopefully serve as a guide for physical therapists. The information presented may be useful when making decisions pertaining to the assessment process and instrument selection which may, in turn, improve the quality of care and/or quality of services for both the child and his or her family. This information may also simplify the assessment process for the physical therapist as well.



## APPENDIX A

EXPEDITED REVIEW REQUESTED UNDER ITEM \_\_\_\_ (NUMBER[S]) OF HHS REGULATIONS  
 X EXEMPT REVIEW REQUESTED UNDER ITEM 3 (NUMBER[S]) OF HHS REGULATIONS

**UNIVERSITY OF NORTH DAKOTA HUMAN SUBJECTS REVIEW FORM  
 FOR NEW PROJECTS OR PROCEDURAL REVISIONS TO APPROVED  
 PROJECTS INVOLVING HUMAN SUBJECTS**

PRINCIPAL Peggy Mohr, Ph.D., P.T. (701) 777-2831  
 INVESTIGATOR: Laura Torkildson TELEPHONE: (701) 772-6137 DATE: 7-28-00

ADDRESS TO WHICH NOTICE OF APPROVAL SHOULD BE SENT: 2450 30<sup>th</sup> Avenue South #319 Grand Forks, ND 58201

SCHOOL/COLLEGE: Medicine DEPARTMENT: Physical Therapy PROPOSED PROJECT DATES: 2/2000 – 12/2000  
 (Month/Day/Year)

PROJECT TITLE: Pediatric Physical Therapy Assessment Tools Utilized by Therapists in Minnesota and North Dakota

FUNDING AGENCIES (IF APPLICABLE): N/A

TYPE OF PROJECT (Check ALL that apply):

X NEW PROJECT PROJECT DISSENTATION OR  
 CONTINUATION RENEWAL THESIS RESEARCH X STUDENT RESEARCH

CHANGE IN PROCEDURE FOR A PREVIOUSLY APPROVED PROJECT

DISSERTATION/THESIS ADVISER, OR STUDENT ADVISER: Peggy Mohr, Ph.D., P.T.

PROPOSED PROJECT: INVOLVES NEW DRUGS (IND) INVOLVES NON-APPROVED INVOLVES A  
USE OF DRUG X COOPERATING INSTITUTION

IF ANY OF YOUR SUBJECTS FALL IN ANY OF THE FOLLOWING CLASSIFICATIONS, PLEASE INDICATE THE CLASSIFICATION(S):

MINORS (< 18 YEARS) PREGNANT WOMEN MENTALLY DISABLED FETUSES MENTALLY RETARDED  
PRISONERS ABORTUSES UND STUDENTS (> 18 YEARS)

IF YOUR PROJECT INVOLVES ANY HUMAN TISSUE, BODY FLUIDS, PATHOLOGICAL SPECIMENS, DONATED ORGANS, FETAL MATERIAL, OR PLACENTAL MATERIALS, CHECK HERE

IF YOUR PROJECT HAS BEEN WILL BE SUBMITTED TO ANOTHER INSTITUTIONAL REVIEW BOARD(S), PLEASE LIST NAME OF BOARD(S): N/A

Status: Submitted; Date Approved; Date Pending

**1. ABSTRACT: (LIMIT TO 200 WORDS OR LESS AND INCLUDE JUSTIFICATION OR NECESSITY FOR USING HUMAN SUBJECTS.)**

Physical therapists are important members of multifaceted teams of professionals who work with children with disabilities. Much of the physical therapist's role involves assessment of a child's development. Assessment is an ongoing process of gathering and evaluating information about the child so that effective treatment can be implemented and eligibility for appropriate services determined. Therefore it is imperative

that physical therapists have current knowledge about various assessment instruments and the appropriate usage of each.

The intention of this study is to identify and examine pediatric assessment instruments utilized by physical therapists in Minnesota and North Dakota. With this information, trends in assessment instrumentation will be uncovered, advantages and/or disadvantages of specific tests reported and professional pediatric physical therapy curriculum design guided. In order to obtain this information, it is necessary to ask individual human subjects for their input.

A survey questionnaire that inquires about utilization of pediatric assessment instruments will be sent to physical therapists practicing in Minnesota and North Dakota as identified by the Minnesota and North Dakota state representatives of the APTA pediatrics sections.

Subjects will be asked to provide information about: (1) which assessment instruments they utilize: purpose and frequency, (2) advantages and/or disadvantages of specific instruments and (3) which instruments they believe entry-level pediatric physical therapists should be competent. This data will be coded, analyzed and the results reported identifying: (1) trends in assessment instrument usage, methods of instrument application and purpose, (2) advantages and/or disadvantages of specific instruments and (3) information regarding the subject's opinions of necessary entry-level physical therapist assessment tool competencies.

**PLEASE NOTE:** Only information pertinent to your request to utilize human subjects in your project or activity should be included on this form. Where appropriate attach sections from your proposal (if seeking outside funding).

**2. PROTOCOL:** (Describe procedures to which humans will be subjected. Use additional pages if necessary. Attach any surveys, Tests, questionnaires, interview questions, examples of interview questions [if qualitative research], etc., the subjects will be asked to complete.)

A survey questionnaire that inquires about utilization of pediatric assessment instruments will be sent to physical therapists practicing in Minnesota and North Dakota as identified by the Minnesota and North Dakota state representatives of the APTA pediatrics sections. Participation by subjects in this research is optional. The individual's decision whether or not to participate, will in no way affect their future relations with the Physical Therapy Department at the University of North Dakota. Completion and return of the survey will indicate consent by the individual to participate in this study. Subjects will not receive monetary compensation for their participation in this research.

The initial mailing of the survey will be followed by a reminder notice at approximately two weeks and a second mailing of the same survey to non-respondents at approximately four weeks. Surveys will be sent including a pre-addressed and postage-paid envelope for return.

Subjects will be asked to provide information about: (1) which assessment instruments they utilize: purpose and frequency, (2) advantages and/or disadvantages of specific instruments and (3) which instruments they believe entry-level pediatric physical therapists should be competent.

To protect confidentiality, individual's names will not be recorded on the surveys. Data obtained from the surveys will be coded for analysis. No subject will be identified or identifiable in any written reports or publications. All data will be kept in a locked file in the office of my advisor, Dr. Peggy Mohr. Only she and myself will have access to the data. Once I've finished analyzing the data, it will remain locked in the cabinet for a period of three (3) years and then destroyed.

### 3. **BENEFITS:** (Describe the benefits to the individual or society.)

Pediatric physical therapy assessment instruments provide important information about specific areas of dysfunction found in children. This information is used to develop treatment programs and to evaluate a child's progress. Because such valuable information can be identified through the use of these tools, it is important that physical therapists keep current on which tools are being utilized, how they are being used and why. This survey will hopefully be beneficial to physical therapists by providing such information and potentially beneficial to children as they may receive more appropriate treatment. Results of this survey may also be beneficial to those who design professional pediatric physical therapy curriculums. Information provided may serve as a guide in choosing assessment tools to be taught in the classroom. Subjects participating in the survey may be proud of their involvement as they may contribute the knowledge available regarding the current application of assessment tools.

### 4. **RISKS:** (Describe the risks to the subject and precautions that will be taken to minimize them. The concept of risk goes beyond physical risk and includes risks to the subject's dignity and self-respect, as well as psycho-logical, emotional or behavioral risk. If data are collected which could prove harmful or embarrassing to the subject if associated with him or her, then describe the methods to be used to insure the confidentiality of data obtained, including plans for final disposition or destruction, debriefing procedures, etc.)

It is potentially risky for an individual to share personal information regarding their experiences or opinions. The possibility exists then, that this shared information, if linked back to the individual, may cause feelings of discomfort, shame or embarrassment.

To protect confidentiality, individual's names will not be recorded on the surveys. Data will be coded for analysis. No one will be identified or identifiable in any written reports or publications. All data will be kept in a locked file cabinet in the office of my advisor, Dr. Peggy Mohr. Only she and myself will have access to the data. Once I've finished analyzing the data, it will remain locked in the cabinet for a period of three (3) years and then destroyed.

Participation in this research is optional. Individuals will consent to participate by completing and returning the survey. The individual's decision whether or not to participate, will in no way affect their future relations with the Physical Therapy Department at the University of North Dakota.

Names and addresses of potential survey participants have been provided by representatives of the Minnesota and North Dakota APTA pediatrics section. Names and addresses provided by these representatives were done with the permission of these individuals.

### 5. **CONSENT FORM:** A copy of the **CONSENT FORM** to be signed by the subject (if applicable) and/or any statement to be read to the subject should be attached to this form. If no **CONSENT FORM** is to be used, document the procedures to be used to assure that infringement upon the subject's rights will not occur.

Describe where signed consent forms and data will be kept for the required three years, including plans for final disposition or destruction.

No formal consent form will be used. Consent by individuals to participate is implied upon their completion and return of the survey. This is stated clearly in the cover letter that each individual will receive with the survey.

All data collected will be kept locked in a file cabinet in the office of my advisor, Dr. Peggy Mohr.

Only she and myself will have access to the data. Once I've finished analyzing the data, it will remain locked in the cabinet for a period of three (3) years and then be destroyed.

6. For **FULL IRB REVIEW** forward a signed original and fifteen (15) copies of this completed form, and where applicable, fifteen (15) copies of the proposed consent form, questionnaires, etc. and any supporting documentation to:

Office of Research & Program Development  
University of North Dakota  
Grand Forks, North Dakota 58202-7134

On campus, mail to: Office of Research & Program Development, Box 7134, or drop it off at Room 105 Twamley Hall.

For **EXEMPT** or **EXPEDITED REVIEW** forward a signed original and a copy of the consent form, questionnaires, etc. and any supporting documentation to one of the addresses above.

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The policies and procedures on Use of Human Subjects of the University of North Dakota apply to all activities involving use of Human Subjects performed by personnel conducting such activities under the auspices of the University. No activities are to be initiated without prior review and approval as prescribed by the University's policies and procedures governing the use of human subjects.

**SIGNATURES:**

_____	<i>Laura Terkelsen</i>	Principal Investigator	7/28/00	Date
_____	<i>Daggy Maher</i>	Project Director or Student Adviser	- -00	Date
_____		Training or Center Grant Director		Date

(Revised 4/1/1998)

**STUDENT RESEARCHERS:** As of June 4, 1997 (based on the recommendation of UND Legal Counsel) the University of North Dakota IRB is unable to approve your project unless the following "Student Consent to Release of Educational Record" is signed and included with your "Human Subjects Review Form."

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### STUDENT CONSENT TO RELEASE OF EDUCATIONAL RECORD<sup>1</sup>

Pursuant to the Family Educational Rights and Privacy Act of 1974, I hereby consent to the Institutional Review Board's access to those portions of my educational record which involve research that I wish to conduct under the Board's auspices. I understand that the Board may need to review my study data based on a question from a participant or under a random audit.

The study to which this release pertains is  
Pediatric Physical Therapy Assessment Tools Utilized by Therapists in Minnesota and North Dakota.

I understand that such information concerning my educational record will not be released except on the condition that the Institutional Review Board will not permit any other party to have access to such information without my written consent. I also understand that this policy will be explained to those persons requesting any educational information and that this release will be kept with the study documentation.

7-28-00

Date

  
Signature of Student Researcher

<sup>1</sup>Consent required by 20 U.S.C. 1232g.

**REPORT OF ACTION: EXEMPT/EXPEDITED REVIEW**  
**University of North Dakota Institutional Review Board**

**Date:** August 1, 2000 **Project Number:** IRB-200008-016  
**Name:** Peggy Mohr, Ph.D., P.T.; Laura Torkildson **Department/College:** Physical Therapy  
**Project Title:** Pediatric Physical Therapy Assessment Tools Utilized by Therapists in Minnesota and North Dakota

The above referenced project was reviewed by a designated member for the University's Institutional Review Board on August 2, 2000 and the following action was taken:

☐ Project approved. **EXPEDITED REVIEW** Category No. \_\_\_\_\_  
 Next scheduled review is on: \_\_\_\_\_

☒ Project approved. **EXEMPT REVIEW** Category No. 2  
☒ This approval is valid until 12/31/2000 as long as approved procedures are followed. No periodic review scheduled unless so stated in the Remarks Section.

☐ Project approved **PENDING** receipt of corrections/additions. These corrections/additions should be submitted to ORPD for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.** (See Remarks Section for further information.)

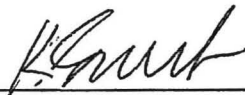
☐ Project approval **deferred**. **This study may not be started until final IRB approval has been received.** (See Remarks Section for further information.)

☐ Project **denied**. (See Remarks Section for further information.)

**REMARKS:** Any changes in protocol or adverse occurrences in the course of the research project must be reported immediately to the IRB Chairperson or ORPD.

**PLEASE NOTE:** Requested revisions for student proposals **MUST** include adviser's signature.

cc: Peggy Mohr, Adviser  
 Chair, Department of Physical  
 Therapy

  
 Signature of Designated IRB Member  
 UND's Institutional Review Board

8-2-00  
 Date

Dean, School of Medicine  
 If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact ORPD to obtain the required documents.

July 26, 2000

Peggy Mohr, Ph.D., P.T.  
School of Medicine and Health Sciences  
University of North Dakota Department of Physical Therapy  
501 North Columbia Road  
P.O. Box 9037  
Grand Forks, North Dakota 58202-9037


Dear Peggy:

As you know, I am a physical therapy student at the University of North Dakota in the process of completing an independent study requirement for graduation. As part of my study, I will be sending assessment tool surveys to physical therapists in Minnesota and North Dakota who work in Pediatrics. As you are the North Dakota representative of the APTA Pediatrics Section, I have asked you to provide me with names and addresses of fellow physical therapist section members so that I may disperse surveys to them. Your signature at the bottom of this letter indicates your approval in my utilization of those individual's names and addresses for this purpose. Names and addresses provided will only be of those individuals who give permission to do so and each individual's name and address will only be utilized for purposes of this survey.

If you have any questions regarding the independent study and/or the survey, please contact me at 701-772-6137.

Thank you for your cooperation with my study.

Sincerely,

  
Laura Torkildson, S.P.T.

 7-27-00  
Peggy Mohr, Ph.D., P.T. date



July 26, 2000

Marcia H. Mattson, P.T.  
 Capernaum Pediatric Therapy, Inc.  
 13924 Lake Street Extension  
 Minnetonka, Minnesota 55345-3017

Dear Marcia:

As you know, I am a physical therapy student at the University of North Dakota in the process of completing an independent study requirement for graduation. As part of my study, I will be sending assessment tool surveys to physical therapists in Minnesota and North Dakota who work in Pediatrics. As you are the Minnesota representative of the APTA Pediatrics Section, I have asked you to provide me with names and addresses of fellow physical therapist section members so that I may disperse surveys to them. Your signature at the bottom of this letter indicates your approval in my utilization of those individual's names and addresses for this purpose. Names and addresses provided will only be of those individuals who give permission to do so and each individual's name and address will only be utilized for purposes of this survey.

If you have any questions regarding the independent study and/or the survey, please contact me at 701-772-6137. Or you may contact my academic advisor, Peggy Mohr, Ph.D., P.T., at 701-777-3689.

Please return this form via fax to 701-777-4199, attention PEG. Thank you for your cooperation with my study.

Sincerely,

  
 Laura Torkildson, S.P.T.

MARCIA H. MATTSON, P.T.      7/26/00  
 Marcia Mattson, P.T.      date

## APPENDIX B

August 30, 2000

My name is Laura Torkildson and I am a physical therapy student at the University of North Dakota. In fulfillment of an independent study requirement, I am conducting a research survey designed to identify and examine pediatric assessment tools utilized by physical therapists in Minnesota and North Dakota. Through this survey, I hope to provide information regarding trends in assessment tool utilization (why, how and how often), advantages and/or disadvantages of specific tools, potential needs in pediatric physical therapy curriculum design, and areas of need in assessment instrumentation.

You are invited, to participate in this research by sharing your experiences and opinions regarding pediatric assessment instrumentation. **Please complete the enclosed survey and return it in the postage paid envelope provided by September 13, 2000.** Your response is crucial to the success of this research. The survey will take approximately 5 minutes to complete.

Completing the survey is optional. By completing and returning the survey, you consent to the use of your information in my research project. Your decision whether or not to participate will not affect your future relations with the Physical Therapy Department at the University of North Dakota in any way.

To protect confidentiality, your name will not be placed on the survey. You will not be identified or identifiable in any written reports or publication. All data will be coded for analysis and will be kept in a locked file cabinet in the office of my advisor, Peggy Mohr, Ph.D., P.T. Only my advisor and myself will have access to the data. Once I finish analyzing the data, it will remain locked in a cabinet for a period of three (3) years. At expiration of three years, all data will be destroyed.

I would be happy to answer any questions you may have about this survey or the study itself. You may contact my advisor, Peggy Mohr or myself.

Laura Torkildson  
2450 30<sup>th</sup> Avenue South #319  
Grand Forks, ND 58201  
(701) 772-6137

Peggy M. Mohr, Ph.D., P.T.  
Department of Physical Therapy  
University of North Dakota School of Medicine  
P.O. Box 9037  
Grand Forks, ND 58202-9037  
(701) 777-3689

Thank you for your help by completing and returning the enclosed survey!

Sincerely,

  
Laura Torkildson

## Pediatric Assessment Tool Survey

1. What percentage of your practice is in pediatrics?

☐ Up to 10%      ☐ 51 to 75%  
☐ 11 to 25%      ☐ 76 to 99%  
☐ 26 to 50%      ☐ 100%

2. What type of setting are you primarily practicing in?

☐ in-patient      ☐ out-patient  
☐ school system      ☐ consultative  
☐ private practice      ☐ home health  
☐ other: \_\_\_\_\_

3. Which population distribution is most characteristic of your primary practice setting?

☐ more than 100,000  
☐ between 25,000 and 100,000  
☐ between 2,500 and 25,000  
☐ rural home visits  
☐ combinations of the above

4. Length of professional experience in pediatrics:

☐ Up to 2 yrs      ☐ 11 to 15 yrs  
☐ 2 to 5 yrs      ☐ 16 to 20 yrs  
☐ 5 to 10 yrs      ☐ over 20 yrs  
☐ full-time  
☐ part-time

5. What is your professional training?

☐ BSPT      ☐ MSPT  
☐ MPT  
☐ other: \_\_\_\_\_

6. What certification(s) do you currently have?

☐ Pediatric Specialist  
☐ other: \_\_\_\_\_

7. Please indicate any of the following instruments you use in your practice:

☐ Peabody      ☐ Denver II  
☐ Bayley II      ☐ PEDI  
☐ WeeFim      ☐ AIMS  
☐ Bruininks-Oseretsky  
☐ Gross Motor Perform. Measure  
☐ other: \_\_\_\_\_  
☐ other: \_\_\_\_\_

8. Describe how frequently you utilize the following instruments? (Place the letter of the appropriate choice next to the specific instrument.)

- a. 0 to 5 times per month  
 b. 6 to 10 times per month  
 c. 11 to 15 times per month  
 d. 16 to 20 times per month  
 e. more than 20 times per month

☐ Peabody      ☐ Denver II  
☐ Bayley II      ☐ PEDI  
☐ WeeFim      ☐ AIMS  
☐ Bruininks-Oseretsky  
☐ Gross Motor Perform. Measure  
☐ other: \_\_\_\_\_  
☐ other: \_\_\_\_\_

9. For what purpose(s) do you seek assessment scores? (Check all that apply.)

☐ eligibility requirements  
☐ third party payer requirements  
☐ proof of treatment efficacy  
☐ research  
☐ other: \_\_\_\_\_  
☐ other: \_\_\_\_\_

77  
Pediatric Assessment Tool Survey

10. In what format do you most frequently administer the following instruments? (Place the letter of the appropriate choice next to the specific instrument.)

- a. formal application as indicated in the manual
- b. adapted checklist format
- c. other adapted format: \_\_\_\_\_
- d. other adapted format: \_\_\_\_\_

<input type="checkbox"/> Peabody	<input type="checkbox"/> Denver II
<input type="checkbox"/> Bayley II	<input type="checkbox"/> PEDI
<input type="checkbox"/> WeeFim	<input type="checkbox"/> AIMS
<input type="checkbox"/> Bruininks-Oseretsky	
<input type="checkbox"/> Gross Motor Perform. Measure	
<input type="checkbox"/> other:	_____
<input type="checkbox"/> other:	_____

11. What do you feel are advantages and/or disadvantages of the following instruments? (Place the letters of the appropriate choices next to the specific instrument.)

- a. easy administration
  - b. difficult administration
  - c. quick administration
  - d. time consuming administration
  - e. reliability and validity
  - f. standardized instrument
  - g. other: \_\_\_\_\_
  - h. other: \_\_\_\_\_
- |   |                                    |
|---|------------------------------------|
| <input type="checkbox"/> Peabody                      | <input type="checkbox"/> Denver II |
| <input type="checkbox"/> Bayley II                    | <input type="checkbox"/> PEDI      |
| <input type="checkbox"/> WeeFim                       | <input type="checkbox"/> AIMS      |
| <input type="checkbox"/> Bruininks-Oseretsky          |                                    |
| <input type="checkbox"/> Gross Motor Perform. Measure |                                    |
| <input type="checkbox"/> other:                       | _____                              |
| <input type="checkbox"/> other:                       | _____                              |

12. Of the following instruments, which do you feel should be included in entry-level required PT competencies? (Check all that apply.)

<input type="checkbox"/> Peabody	<input type="checkbox"/> Denver II
<input type="checkbox"/> Bayley II	<input type="checkbox"/> PEDI
<input type="checkbox"/> WeeFim	<input type="checkbox"/> AIMS
<input type="checkbox"/> Bruininks-Oseretsky	
<input type="checkbox"/> Gross Motor Perform. Measure	
<input type="checkbox"/> other:	_____
<input type="checkbox"/> other:	_____

13. Do any of the following apply to your professional needs in pediatric assessment instrumentation? (Check all that apply.)

- A need for:
- ☐ greater choice of instruments
  - ☐ instruments standardized on children with disabilities
  - ☐ reasonably priced instruments
  - ☐ quick and easily administered instruments
  - ☐ instruments that assess function
  - ☐ instruments that assess quality of movement
  - ☐ other: \_\_\_\_\_
  - ☐ other: \_\_\_\_\_

Thank you for completing this survey.

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